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REPORT
FIELD ACTIVITIES
ROCK SPRINGS FLOOD CONTROL PROJECT
COYOTE CREEK
SAN JOSE, CALIFORNIA

Job No. 95-00112018.00
July 11, 2001

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Mr. Steven Chen
U.S. Army Engineer District, San Francisco
333 Market Street, Room 719N
CESPN-ET-EG, Geotechnical Department
San Francisco, California 94105-2197

Subject: Report of Field Activities
Rock Springs Flood Control Project at Coyote Creek
San Jose, California

Dear Mr. Chen:

In accordance with our agreement for Professional Services (Job No. 95-00112018.00), we are pleased to submit this report describing the results of our geotechnical field investigation for the Rock Springs Flood Control Project at Coyote Creek. This report presents the results of our subsurface exploration and laboratory testing program regarding the geotechnical aspects of the project.

PROJECT DESCRIPTION

We understand the Rock Springs Flood Control Project will consist of an approximately 1,800-foot long flood control wall on the west side of Coyote Creek. The flood control wall is currently planned to roughly extend from the south end of Wool Drive to just north of Bevin Brook Drive. Our scope of services included drilling and sampling three borings to about 25 feet deep along the proposed wall alignment at locations selected by the U.S. Army Corps of Engineers (Corps). We performed a laboratory testing program based on guidance from the Corps and summarized our field and laboratory activities in this report.

SURFACE CONDITIONS

The wall is currently planned for the west side of Coyote Creek, just behind the riverbank. The ground surface behind the riverbank is relatively flat with heavy brush located near its crest. The ground surface where Borings CC-1 and CC-2 were drilled is currently undeveloped. A newly landscaped community playground, however, is located just north of Boring CC-2 and extends to the intersection of Wool Drive and Needles Drive. The area where Boring CC-4 is located is also undeveloped. The area between Boring CC-4 and the playground was not accessible, and consists of an unpaved access road. Based on USGS topographic maps, we estimate the ground surface in the vicinity of the three borings is around Elevation 115 (Mean Sea Level).

SUBSURFACE CONDITIONS

Field Exploration and Laboratory Testing

In order to investigate the soil conditions at the location of the proposed flood control wall, three (3) exploratory borings (CC-1, CC-2 and CC-4) were drilled at the approximate locations shown on Figure 1. The borings extended to depths ranging from 25 feet to 27½ feet below the existing ground surface (bgs). Visual classifications of the soils encountered were made from soil cuttings at the time of drilling. The borings were advanced using a 6-inch solid flight auger. However, Boring CC-4 was drilled using a rotary wash method with a 4-7/8 inch diameter tri-cone bit from 17 to 26½ feet. A detailed explanation of the field exploration program is presented in Appendix A.

Field classifications of soil samples were verified by further examination and testing in the laboratory. Figure A-1 (in Appendix A) presents the Unified Soil Classification System, as well as guidelines summarizing soil consistency and relative density used in preparing the boring logs. A legend of the drilling and sampling operations is included as Figure A-2. The Logs of Borings are presented in Figures A-3 through A-5 in Appendix A.

Grain size analyses and hydrometer analyses were performed on selected soil samples; the results of these tests are presented in Figures A-6 through A-13. Atterberg limits (liquid and plastic limits) tests for fine grained soil samples were performed; the results of these tests are presented in Figure A-14 through A-19. Direct shear tests were performed on selected samples to evaluate the shearing resistance of selected materials; the results of these tests are presented in Figures A-20 through A-22. A more comprehensive discussion of the laboratory testing program is presented in Appendix A.

Soil and Groundwater Conditions

Based on the borings drilled for this investigation, we encountered generally 3 to 14 feet of very stiff, low plasticity lean clay to lean clay with gravel fill overlying stiff to very stiff silt, silty clay and lean clay of low plasticity to the terminal depth of all borings, with the following exception. In Boring CC-4, medium dense to dense well graded sand with silt and gravel was encountered from about 14½ to 21 feet bgs.

Groundwater was encountered in Borings CC-2 and CC-4 at depths of about 24½ and 17 feet bgs, respectively, during drilling operations. In Boring CC-1, groundwater was not encountered at time of drilling (ATD). Because the groundwater measurements described above were taken during drilling operations, the water level may not have had time to stabilize and, therefore, might not be the hydrostatic groundwater level. In addition, please note that future fluctuations in the groundwater level may occur due to variations in rainfall and other factors not in evidence at the time measurements were made.

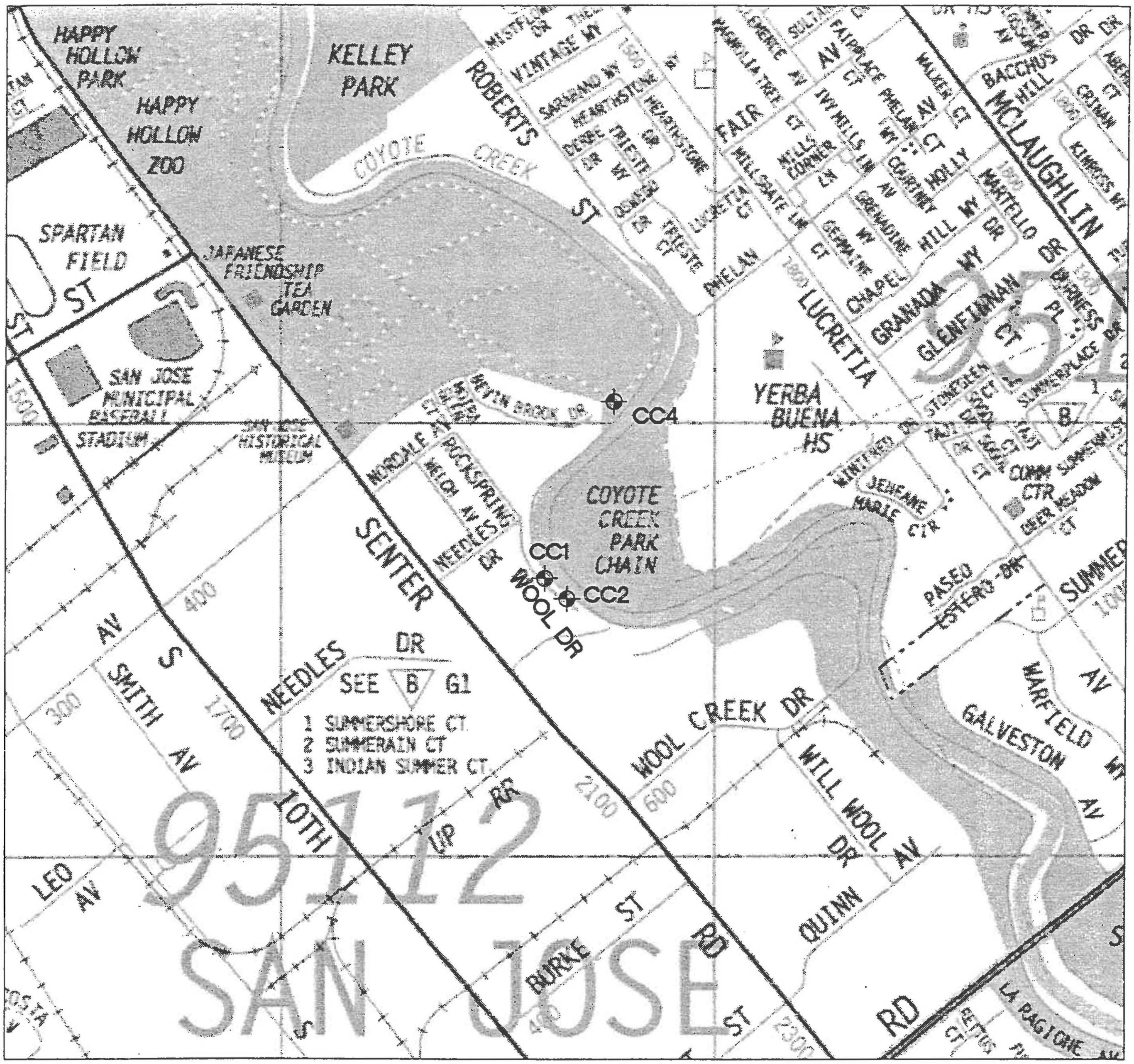
LIMITATIONS

This report was developed with the standard of care commonly used as state of the practice in the profession. No other warranties within or outside the agreement are included, either express or implied, as to the professional advice included in this report.

We are pleased to have been of service to you on this project. If any questions should arise, please contact our office.

Sincerely,

L. Allen Moore P.E. 53476
Project Manager



LEGEND:

CC1
⊕ APPROXIMATE LOCATION OF BORINGS.

SCALE : 1 INCH=800 FEET
800 0 800

Source: Thomas Brothers Map, 2001.

Q:\CADD2\01FILES\95-00112018.00\PLAN.DWG

Project No. 95-00112018.00	ROCK SPRINGS FLOOD CONTROL PROJECT AT COYOTE CREEK San Jose, California	SITE AND BORING LOCATION PLAN	Figure 1
6/12/01			
	URS		

APPENDIX A

APPENDIXA

FIELD EXPLORATION

Three (3) exploratory borings were drilled as part of this geotechnical investigation at the locations shown on the Site and Boring Location Plan, Figure 1. These borings were drilled on May 18, 2001 and ranged in depth from about 25 feet to 27½ feet in depth. The borings were advanced using a 6-inch solid flight auger. However, Boring CC-4 was drilled using a rotary wash method with a 4-7/8 inch diameter tri-cone bit from 17 to 26½ feet. The borings were drilled under the supervision of a representative of URS. Visual classifications of the soils encountered were made from soil cuttings at the time of drilling. Samples of the soils were obtained using either a modified California drive sampler (2-inch inside diameter and 2½ inch outside diameter), a Standard Penetration (SPT) sampler (1-3/8 inch inside diameter and 2-inch outside diameter) or a Shelby tube sampler (2-7/8 inch inside diameter and 3-inch outside diameter).

The modified California and SPT samplers were advanced into the soil at the bottom of the hole with a 140-pound safety hammer free falling 30 inches, with blow counts being recorded for the last 12 inches of driving. When very dense or hard materials were encountered and the blow count exceeded 50 blows per 6 inches, refusal criteria was met. The amount of penetration was recorded along with the blow count. The Shelby tube sampler was advanced into the soil at the bottom of the hole using the drill rig's hydraulic system. The hydraulic pressure required to push the Shelby tube sampler was recorded.

Field classifications of soil samples were verified by further examination and testing in the laboratory in accordance with the Sample Classification Chart, Figure A-1. The type of sampler used at each depth interval is shown on the Logs of Borings in accordance with the symbols explained on the Boring Log Legend Sheet, Figure A-2. The Logs of Borings made for this investigation are presented as Figures A-3 through A-5.

LABORATORY TESTING

Relatively undisturbed soil samples were carefully packaged in the field and sealed to prevent moisture loss. The samples were then transported to our AASHTO certified soils testing laboratory (Signet Testing Labs, Inc.) in Hayward. Laboratory tests were performed on selected samples as an aid in classifying the soils and to evaluate the physical properties of the soils. Detailed descriptions of the laboratory tests are presented below under the appropriate test headings. Test results are presented in the figures that follow.

Grain Size Distribution and Hydrometer Analyses

Grain size and hydrometer analyses were performed on selected samples to evaluate the proportion of gravel, sand, silt and clay materials. Representative soil samples were dried, weighed, and tested in accordance with ASTM D422. The test results are presented in Figures A-6 through A-13.

Plasticity Index

Plasticity characteristics were determined for selected samples by performing Liquid Limit and Plastic Limit tests generally in accordance with ASTM test method D4318. The results of these tests are presented on Figure A-14 through A-19.

APPENDIX A

Drained Direct Shear

Drained direct shear tests were performed on selected samples to evaluate the shearing resistance of selected materials. Representative soil samples were tested in accordance with ASTM 3080. The test results are presented in Figures A-20 through A-22.

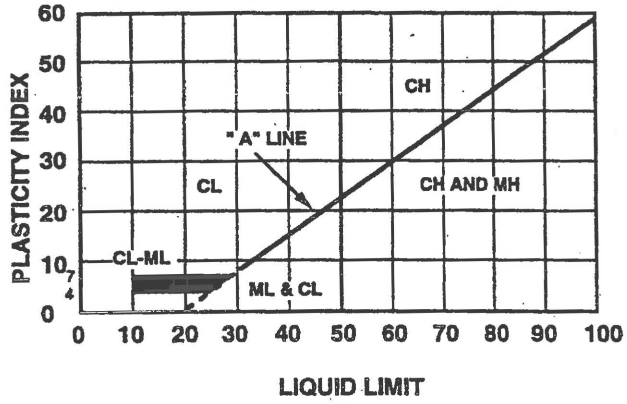
FIGURES

SAMPLE CLASSIFICATION CHART

UNIFIED SOIL CLASSIFICATION SCHEME

MAJOR DIVISIONS		SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOIL (More than 1/2 of soil >no. 200 sieve size)	**GRAVELS** (More than 1/2 of coarse fraction > no. 4 sieve size)	GW	Well-graded gravels and gravel-sand mixtures, little or no fines
		GP	Poorly graded gravel or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SAND (More than 1/2 of coarse fraction < no. 4 sieve size)	SW	Well-graded sands or gravelly sands, little or no fines
		SP	Poorly-graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOIL (More than 1/2 of soil <no. 200 sieve size)	**SILTS & CLAYS** Liquid Limit < 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey, fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays. sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS Liquid Limit > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils

PLASTICITY CHART



GRAIN SIZE CLASSIFICATION

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.76
coarse (c)	3" to 3/4"	76.2 to 19.1
fine (f)	3/4" to No. 4	19.1 to 4.76
SAND	No. 4 to No. 200	4.76 to 0.074
coarse (c)	No. 4 to No. 10	4.76 to 2.00
medium (m)	No. 10 to No. 40	2.00 to 0.420
fine (f)	No. 40 to No. 200	0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

MOISTURE CONTENT

DRY	-No sign of water and soil dry to touch
MOIST	-Signs of water and soil is relatively dry to touch
WET	-Signs of water and soil definitely wet to touch; granular soil exhibits some free water when densified

SOIL CONSISTENCY/RELATIVE DENSITY

SILT, SAND AND GRAVEL	BLOWS/FT	SILT OR CLAY	UNCONFINED COMPRESSIVE STRENGTH (psf)	THUMB PENETRATION
Very loose	<4	Very Soft	< 500	Very easily - inches
Loose	5-10	Soft	500 - 1000	Easily - inches
Medium Dense	11-30	Medium (firm)	1000 - 2000	Moderate effort - inches
Dense	31-50	Stiff	2000 - 4000	Indented easily
Very Dense	>50	Very Stiff	4000 - 8000	Indented by nail
		Hard	> 8000	Difficult by nail

CLASSIFICATION MODIFIERS

TRACE	0 - 12%
SOME	12 - 30%

± MODIFIERS

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Figure A-1

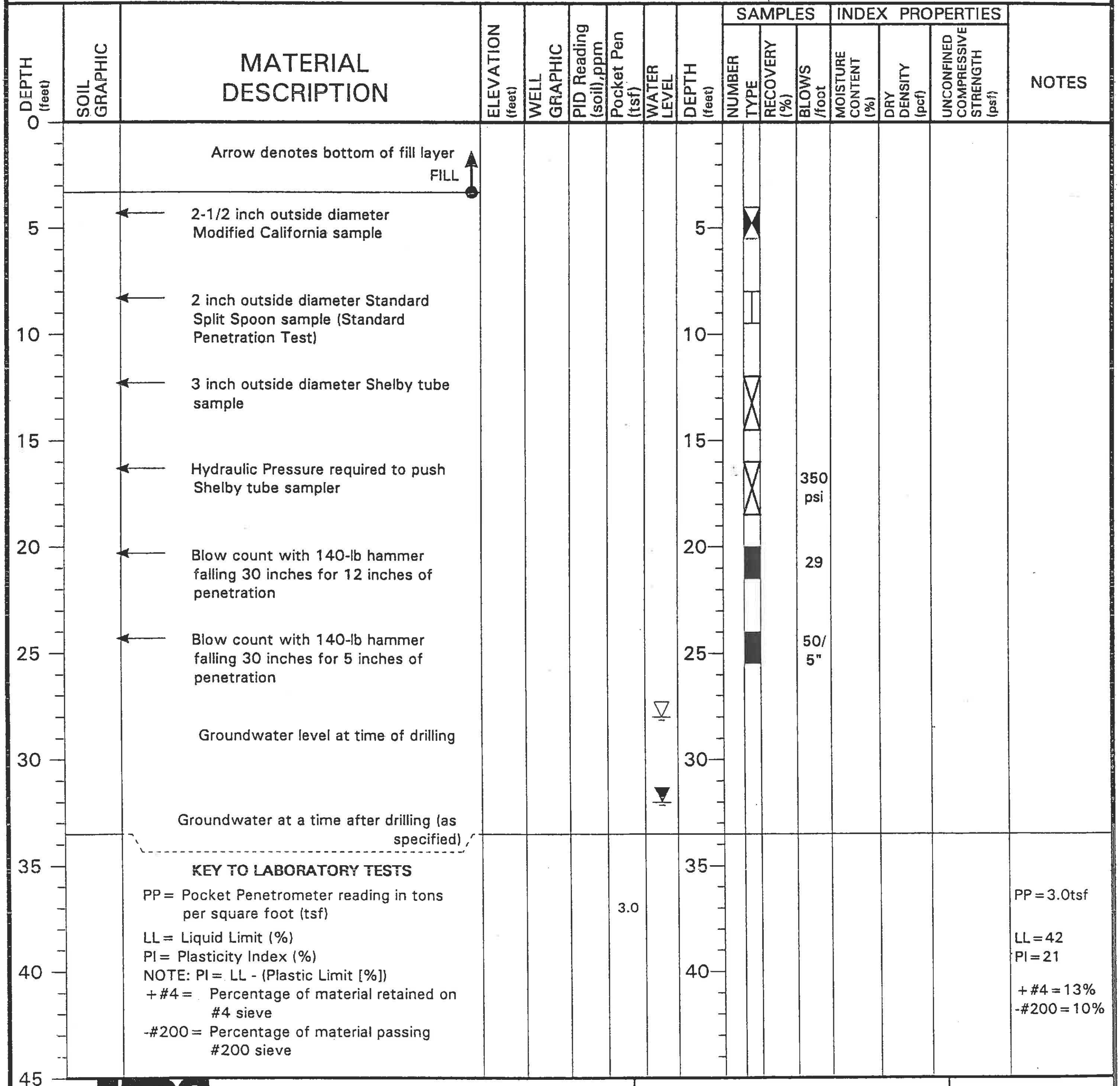
USACE COYOTE CREEK PROJECT San Jose, California

BORING LOCATION:		GROUND SURFACE ELEVATION (ft): TOP OF WELL CASING ELEVATION (ft):
DRILLING AGENCY	DRILLER	DATE STARTED: DATE FINISHED:
DRILLING EQUIPMENT		COMPLETION DEPTHS BORING: 45.0 (ft) WELL: (ft)
DRILLING METHOD (as noted)	DRILL BIT	SAMPLING METHOD
SIZE AND TYPE OF CASING		NUMBER OF SAMPLES DIST: UNDIST:
TYPE OF PERFORATION	FROM TO	WATER DEPTH (ft) FIRST: 28 COMPL.: 32 24 hr.:
SIZE AND TYPE OF SEAL	FROM TO	LOGGED BY / CHECKED BY

Remarks:

LOG OF LEGEND

(Sheet 1 of 1)



Arrow denotes bottom of fill layer

FILL

2-1/2 inch outside diameter Modified California sample

2 inch outside diameter Standard Split Spoon sample (Standard Penetration Test)

3 inch outside diameter Shelby tube sample

Hydraulic Pressure required to push Shelby tube sampler

Blow count with 140-lb hammer falling 30 inches for 12 inches of penetration

Blow count with 140-lb hammer falling 30 inches for 5 inches of penetration

Groundwater level at time of drilling

Groundwater at a time after drilling (as specified)

KEY TO LABORATORY TESTS

PP = Pocket Penetrometer reading in tons per square foot (tsf)

LL = Liquid Limit (%)

PI = Plasticity Index (%)

NOTE: PI = LL - (Plastic Limit [%])

+#4 = Percentage of material retained on #4 sieve

-#200 = Percentage of material passing #200 sieve

PP = 3.0tsf

LL = 42

PI = 21

+#4 = 13%

-#200 = 10%

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PROJECT NO. 95-00112018.00

Fig: A-2

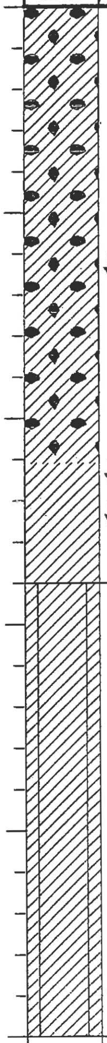
USACE COYOTE CREEK PROJECT San Jose, California

BORING LOCATION: 100' North of Wool Drive Deadend			GROUND SURFACE ELEVATION (ft): 115 TOP OF WELL CASING ELEVATION (ft): N/A
DRILLING AGENCY: Pitcher Drilling	DRILLER		DATE STARTED: 5/18/01 DATE FINISHED: 5/18/01
DRILLING EQUIPMENT: Failing 1500 Truck Mounted Rig			COMPLETION DEPTHS: BORING: 25.0 (ft) WELL: N/A (ft)
DRILLING METHOD: Solid Flight Auger	DRILL BIT 6-inch		SAMPLING METHOD
SIZE AND TYPE OF CASING: N/A			NUMBER OF SAMPLES: DIST: UNDIST:
TYPE OF PERFORATION: N/A	FROM N/A TO N/A		WATER DEPTH (ft): FIRST: 24.5 ▽ COMPL.: N/A ▼ 24 hr.: N/A ▼
SIZE AND TYPE OF SEAL: Cement Grout	FROM 0 TO 25'		LOGGED BY: P.Palmerson · CHECKED BY: TH/AM

Remarks:

LOG OF BORING CC2

(Sheet 1 of 1)



DEPTH (feet)	SOIL GRAPHIC	MATERIAL DESCRIPTION	ELEVATION (feet)	WELL GRAPHIC	PID Reading (soil),ppm	Pocket Pen (tsf)	WATER LEVEL	DEPTH (feet)	SAMPLES				INDEX PROPERTIES			NOTES
									NUMBER	TYPE	RECOVERY (%)	BLOWS /foot	MOISTURE CONTENT (%)	DRY DENSITY (pcf)	UNCONFINED COMPRESSIVE STRENGTH (psf)	
0		**Lean CLAY (CL) with gravel - FILL** Very stiff, damp, reddish brown														
5		Some geofabric	110					5	1	⊠		44				LL=34 PI=12
10		Some gray mottling, no gravel White ceramic fragments FILL	105					10	2	⊠		34				+#4=0% -#200=85%
15		**SILT to Lean CLAY (ML/CL)** Stiff, damp, reddish brown with gray mottling, low plasticity	100					15	3	⊠		18				LL=29 PI=8
20			95					20	4	⊠		22				
		Moist					▽		5	⊠		21				+#4=0% -#200=93%
25		BOTTOM OF BORING AT 25 FEET	90					25								
30																

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PROJECT NO. 95-00112018.00

Fig: A-4

USACE COYOTE CREEK PROJECT San Jose, California

BORING LOCATION:			GROUND SURFACE ELEVATION (ft): 115 TOP OF WELL CASING ELEVATION (ft): N/A
DRILLING AGENCY	Pitcher Drilling	DRILLER	DATE STARTED: 5/18/01 DATE FINISHED: 5/18/01
DRILLING EQUIPMENT	Failing 1500 Truck Mounted Rig		COMPLETION DEPTHS BORING: 26.5 (ft) WELL: N/A (ft)
DRILLING METHOD	6" Solid Flight Auger/Rotary Wash	DRILL BIT 4-7/8in - Tri-cone	SAMPLING METHOD
SIZE AND TYPE OF CASING	N/A		NUMBER OF SAMPLES DIST: UNDIST:
TYPE OF PERFORATION	N/A	FROM N/A TO N/A	WATER DEPTH (ft) FIRST: 17.0 ▽ COMPL.: N/A ▼ 24 hr.: N/A ▽
SIZE AND TYPE OF SEAL	Cement Grout	FROM 0 TO 26.5'	LOGGED BY P.Palmerson CHECKED BY TH/AM

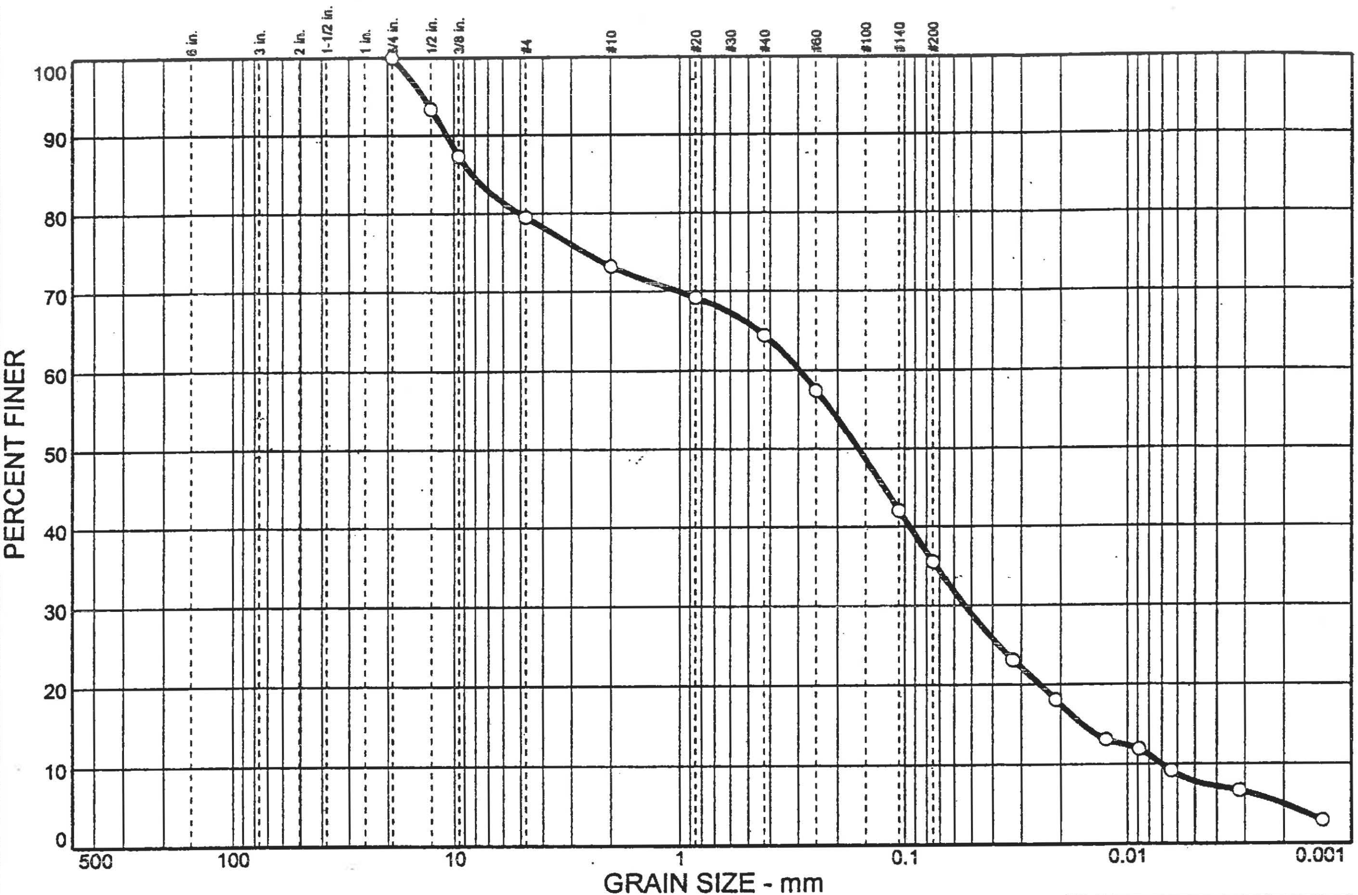
Remarks:

LOG OF BORING CC4

(Sheet 1 of 1)

DEPTH (feet)	SOIL GRAPHIC	MATERIAL DESCRIPTION	ELEVATION (feet)	WELL GRAPHIC	PID Reading (soil),ppm	Pocket Pen (tsf)	WATER LEVEL	DEPTH (feet)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY (%)	SAMPLES BLOWS /foot	INDEX PROPERTIES MOISTURE CONTENT (%)	INDEX PROPERTIES DRY DENSITY (pcf)	INDEX PROPERTIES UNCONFINED COMPRESSIVE STRENGTH (psf)	NOTES
0		**Lean CLAY (CL) with gravel - FILL** Damp, reddish brown FILL														Augered to 17', began rotary wash. Cased top 5'
		Lean CLAY (CL) Very stiff, moist, reddish brown with gray mottling														
5			110					5	1			43				
		Decrease in plasticity														
10			105					10	2			100 350 psi				LL=34 PI=12
15		**Well-graded SAND (SW-SM) with silt and gravel** Dense, damp, reddish brown, (SM) layer from 14-1/2 to 15 feet	100					15	3			52				+#4=30% -#200=12%
									4			36				
							▽									
									5			27				+#4=37% -#200=7%
20		Medium dense, wet	95					20								
		Silty CLAY (CL-ML) with sand Very stiff, moist, reddish brown							6			22				
		Stiff							7			13				+#4=0% -#200=71%
25			90					25	8			100 150 psi				LL=25 PI=8 C= 100 psf phi= 32°
		BOTTOM OF BORING AT 26-1/2 FEET														
30																

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	20.5	6.3	8.8	28.9	27.7	7.8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
1/2 in.	93.3		
3/8 in.	87.3		
#4	79.5		
#10	73.2		
#20	69.2		
#40	64.4		
#60	57.4		
#140	42.0		
#200	35.5		

* (no specification provided)

Soil Description

Brown silty sand with gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 8.30 D_{60}= 0.297 D_{50}= 0.162

D_{30}= 0.0538 D_{15}= 0.0160 D_{10}= 0.0070

C_u= 42.32 C_c= 1.39

Classification

USCS= SM AASHTO=

Remarks

Sample No.: **Source of Sample:** CC1-2-3 **Date:** 5-31-01

Location: **Elev./Depth:** 5-6.5

SIGNET TESTING LABS, INC.

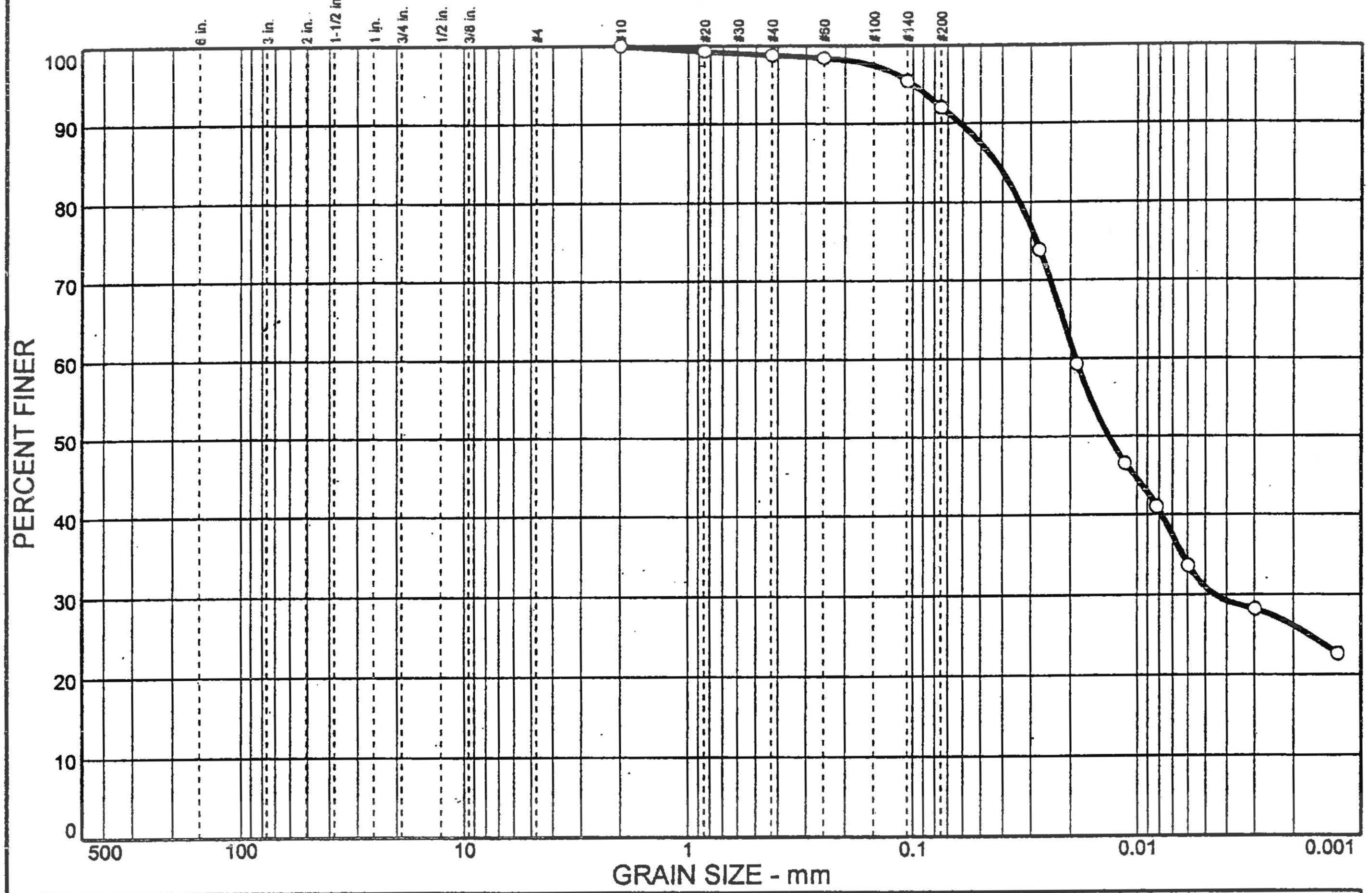
Client: URS

Project: Coyote Creek

Project No: 95-00112018.00 **Plate**

Figure A-6

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.2	6.8	61.1	30.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.3		
#40	98.8		
#60	98.4		
#140	95.4		
#200	92.0		

* (no specification provided)

Soil Description

Light brown silt with clay

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0430 D_{60}= 0.0190 D_{50}= 0.0135

D_{30}= 0.0045 D_{15}= D_{10}=

C_u= C_c=

Classification

USCS= ML AASHTO=

Remarks

Sample No.:
Location:

Source of Sample: CC1-4

Date:
Elev./Depth: 15-17.5

SIGNET TESTING LABS, INC.

Client: URS
Project: Coyote Creek
Project No: 95-00112018.00
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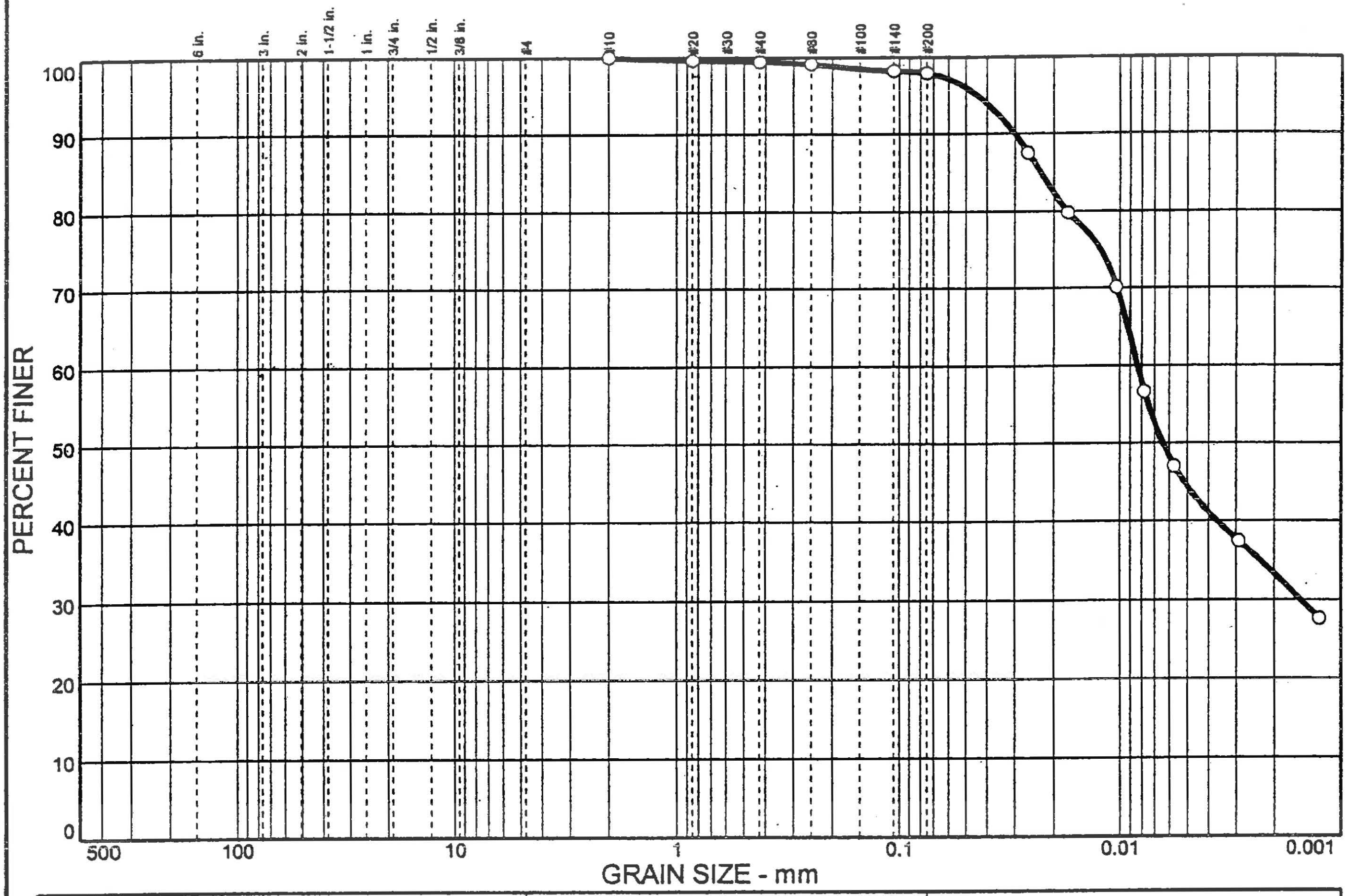
Figure A-7

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.6	1.5	53.6	44.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.6		
#40	99.4		
#60	99.1		
#140	98.2		
#200	97.9		

* (no specification provided)

Soil Description

Light brown clayey silt

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0230 D_{60}= 0.0084 D_{50}= 0.0065
D_{30}= 0.0015 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO=

Remarks

Sample No.: **Source of Sample:** CC1-6 **Date:**
Location: **Elev./Depth:** 25-27.5

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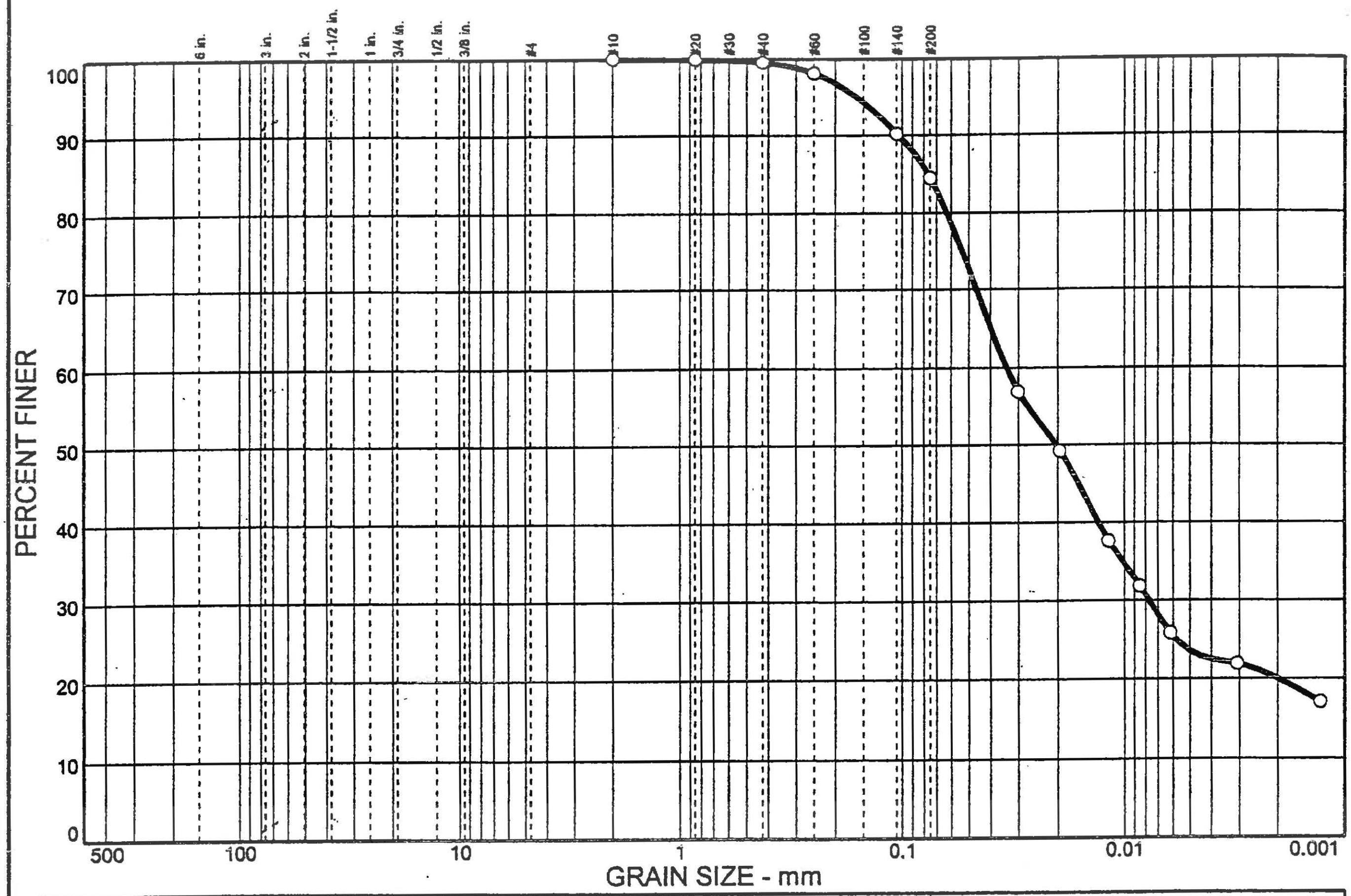
Client: URS
Project: Coyote Creek
Project No: 95-00112018.00 **Plate**

Figure A-8

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.5	15.0	61.0	23.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.9		
#40	99.5		
#60	98.1		
#140	90.2		
#200	84.5		

* (no specification provided)

Soil Description

Light brown silt with sand

Atterberg Limits

PL= LL= PI=

Coefficients

D85= 0.0767 D60= 0.0340 D50= 0.0204
D30= 0.0078 D15= D10=
Cu= Cc=

Classification

USCS= ML AASHTO=

Remarks

Sample No.: **Source of Sample:** CC2-2-3 **Date:**
Location: **Elev./Depth:** 10-11.5

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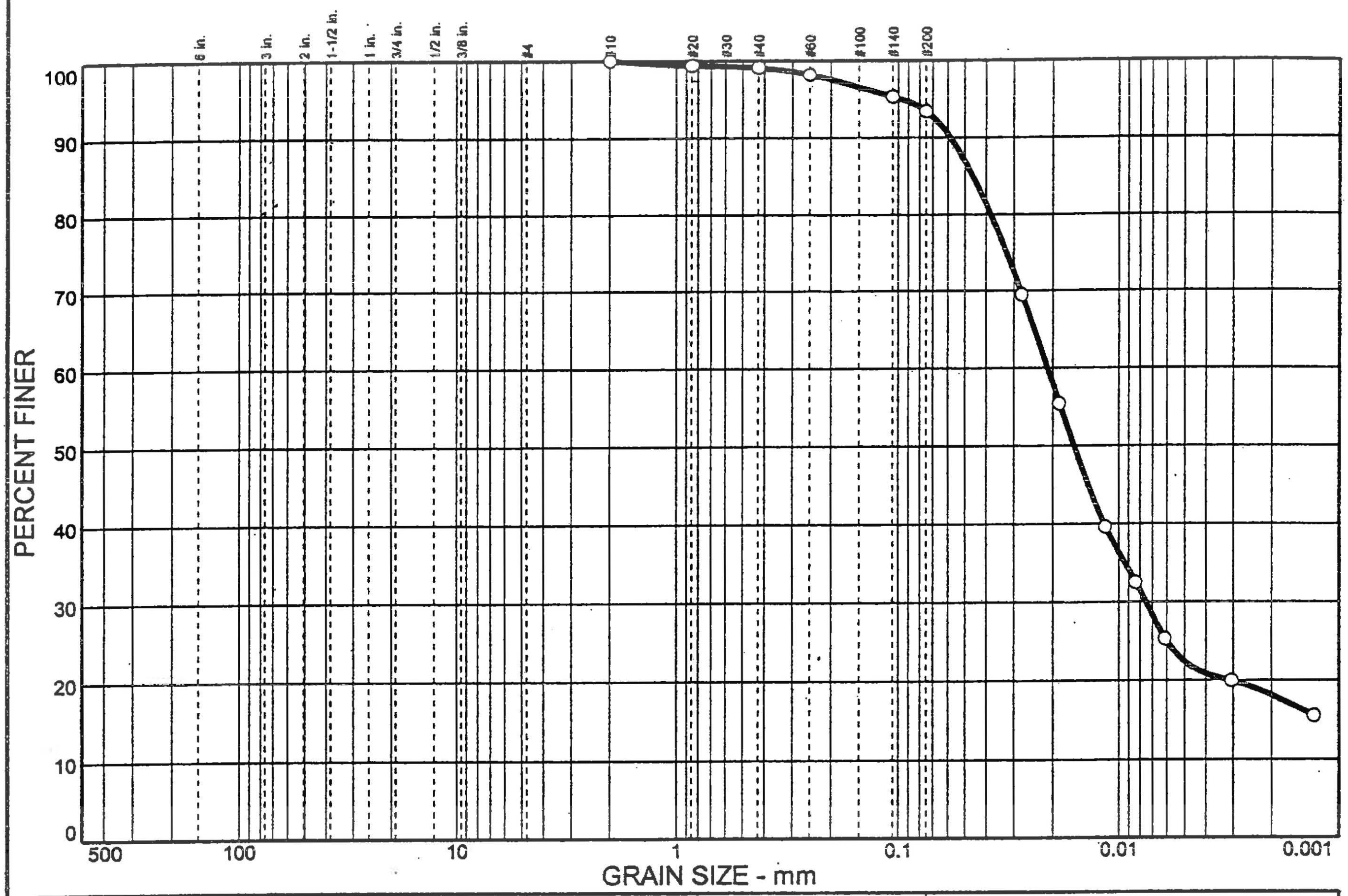
Client: URS
Project: Coyote Creek
Project No: 95-00112018.00 **Plate**

Figure A-9

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	0.9	5.7	71.0	22.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.4		
#40	99.1		
#60	98.2		
#140	95.3		
#200	93.4		

* (no specification provided)

Soil Description

Light brown silt with clay

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.0463 D_{60}= 0.0212 D_{50}= 0.0161
D_{30}= 0.0076 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= ML AASHTO=

Remarks

Sample No.: **Source of Sample:** CC2-5-3 **Date:**
Location: **Elev./Depth:** 23.5-26

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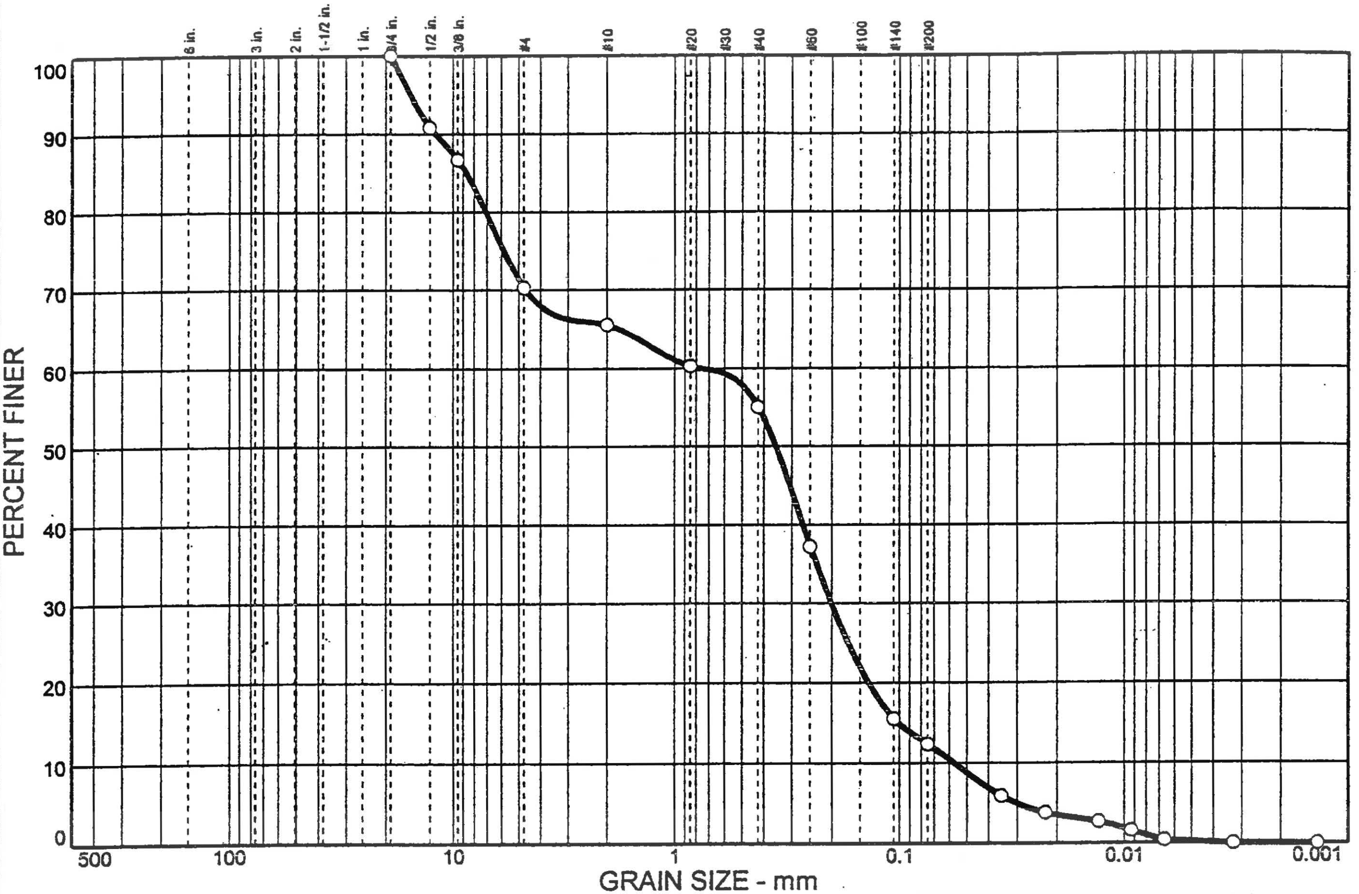
Client: URS
Project: Coyote Creek
Project No: 95-00112018.00 **Plate**

Figure A-10

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	29.7	4.7	10.6	42.6	12.2	0.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
1/2 in.	90.8		
3/8 in.	86.7		
#4	70.3		
#10	65.6		
#20	60.3		
#40	55.0		
#60	37.2		
#140	15.6		
#200	12.4		

* (no specification provided)

Soil Description

Brown poorly graded sand with silt and gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 8.72 D_{60}= 0.762 D_{50}= 0.356
D_{30}= 0.202 D_{15}= 0.101 D_{10}= 0.0572
C_u= 13.34 C_c= 0.94

Classification

USCS= SM AASHTO=

Remarks

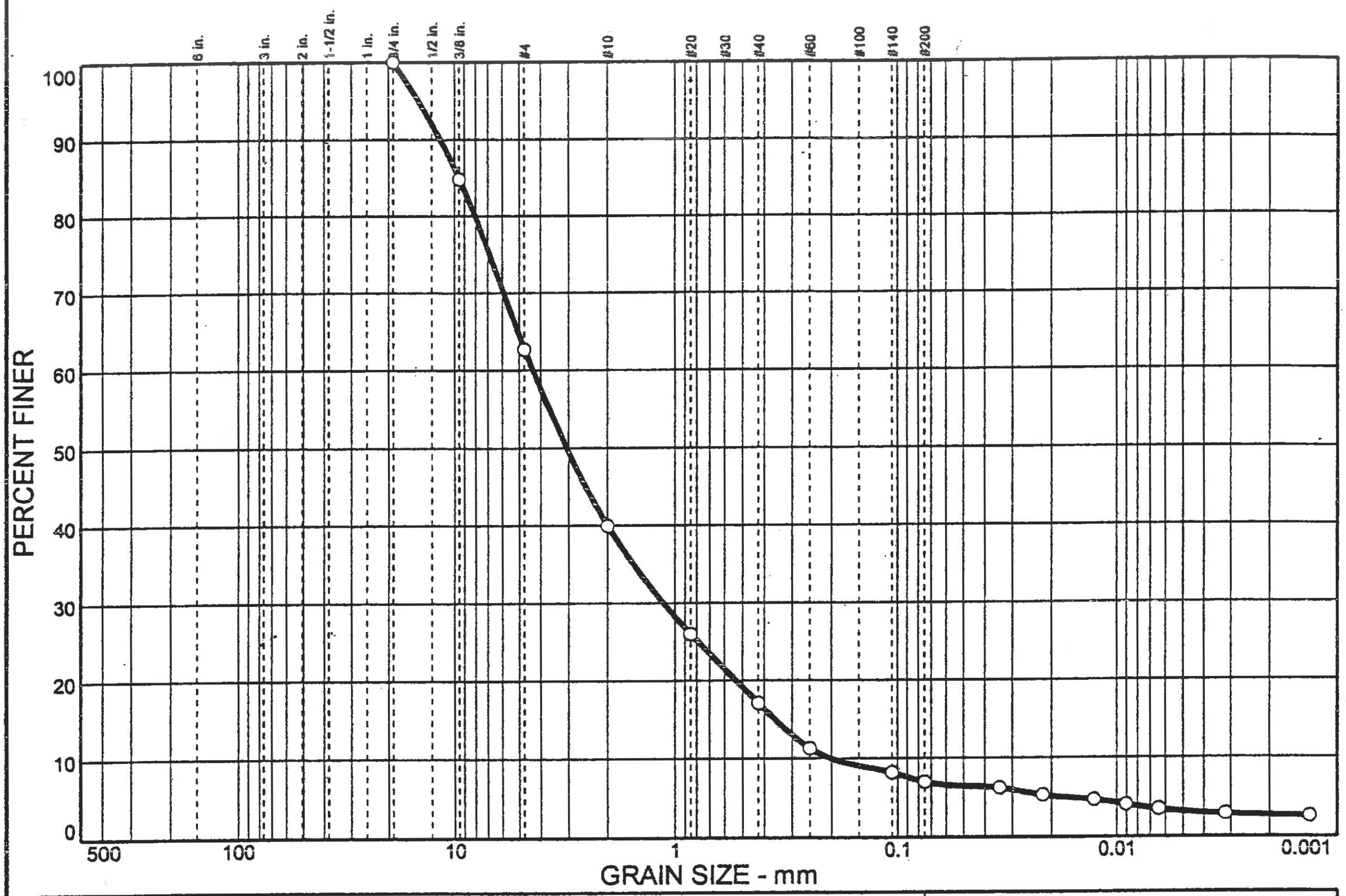
Sample No.:
Location:
Source of Sample: CC4-3-3
Date: 5-31-01
Elev./Depth: 14-15.5

SIGNET TESTING LABS, INC.

Client: URS
Project: Coyote Creek
Project No: 95-00112018.00
Plate

Figure A-11

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	37.3	22.8	22.8	10.1	3.8	3.2

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4 in.	100.0		
3/8 in.	84.8		
#4	62.7		
#10	39.9		
#20	26.0		
#40	17.1		
#60	11.3		
#140	8.2		
#200	7.0		

* (no specification provided)

Soil Description

Brown well-graded sand with silt and gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 9.59 D_{60}= 4.36 D_{50}= 3.07
D_{30}= 1.13 D_{15}= 0.359 D_{10}= 0.201
C_u= 21.65 C_c= 1.46

Classification

USCS= SW-SM AASHTO=

Remarks

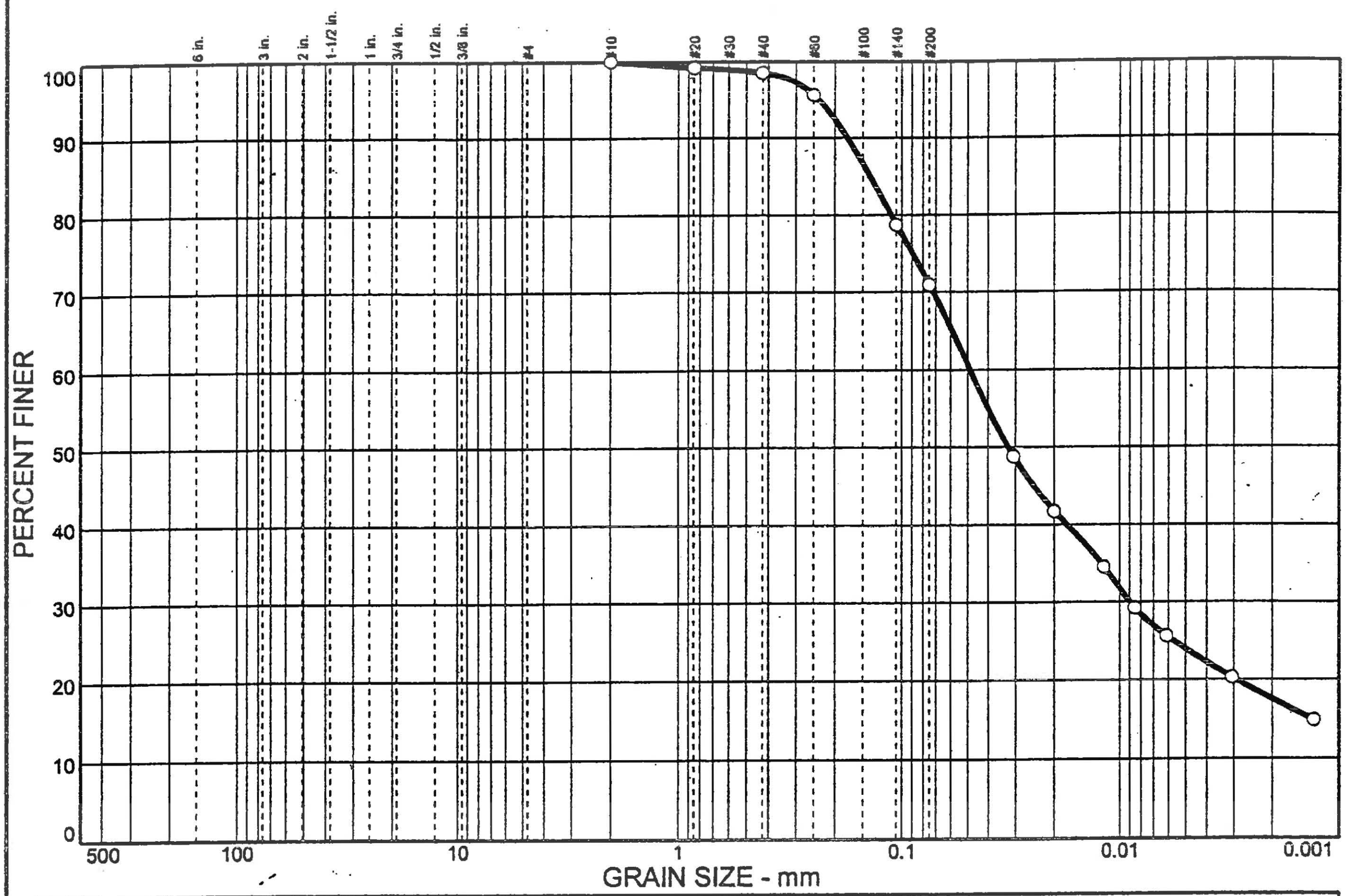
Sample No.:
Location:
Source of Sample: CC4-5-4
Date:
Elev./Depth: 18.5-20

SIGNET TESTING LABS, INC.

Client: URS
Project: Coyote Creek
Project No: 95-00112018.00
Plate

Figure A-12

Particle Size Distribution Report



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0.0	0.0	0.0	0.0	1.5	27.6	47.0	23.9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100.0		
#20	99.2		
#40	98.5		
#60	95.6		
#140	78.7		
#200	70.9		

* (no specification provided)

Soil Description

Gray Silt with sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.140 D_{60}= 0.0489 D_{50}= 0.0324

D_{30}= 0.0090 D_{15}= 0.0013 D_{10}=

C_u= C_c=

Classification

USCS= ML AASHTO=

Remarks

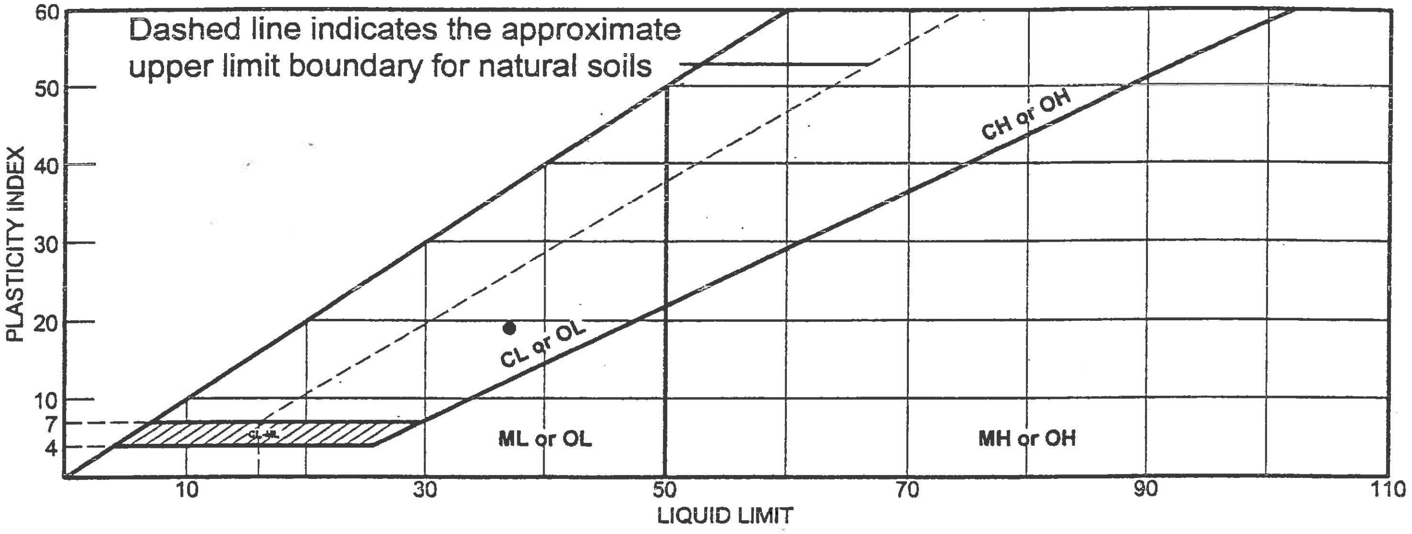
Sample No.:
Location:
Source of Sample: CC4-7-2
Date:
Elev./Depth: 22.5-24

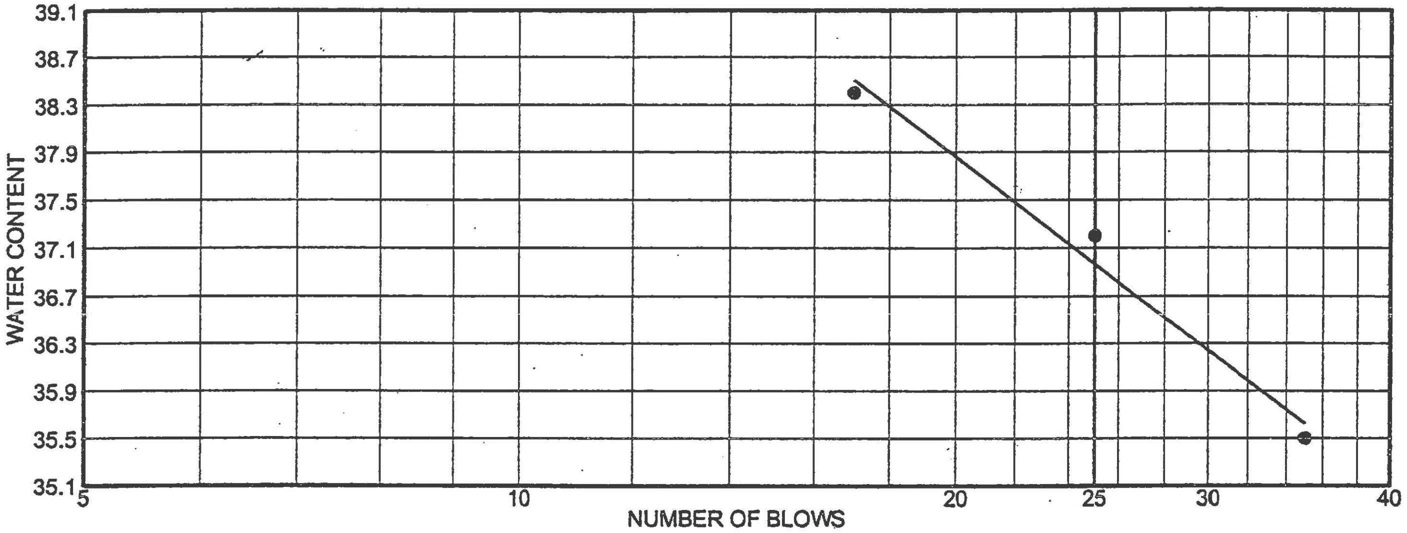
SIGNET TESTING LABS, INC.

Client: URS
Project: Coyote Creek
Project No: 95-00112018.00
Plate

Figure A-13

LIQUID AND PLASTIC LIMITS TEST REPORT


Dashed line indicates the approximate upper limit boundary for natural soils



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Dark gray clay	37	18	19			

Project No. 95- **Client:** URS

Project: Coyote Creek

● **Source:** CC1-3-3 **Elev./Depth:** 10-11.5 ft

Remarks:

● Date tested 6-7-01

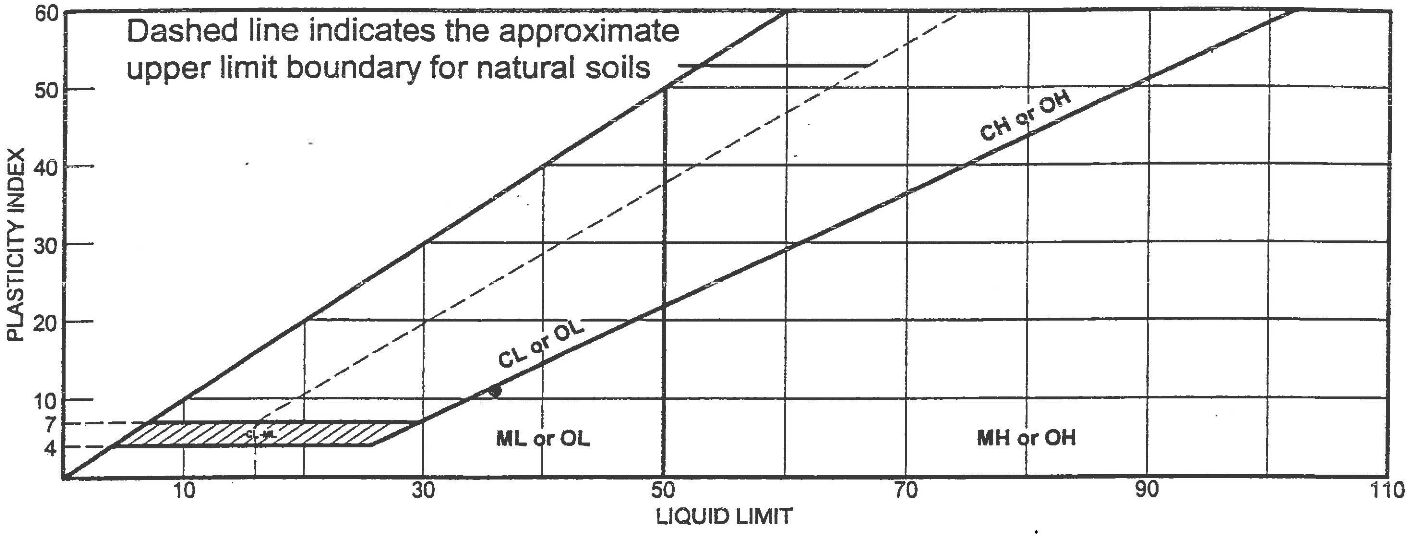
LIQUID AND PLASTIC LIMITS TEST REPORT

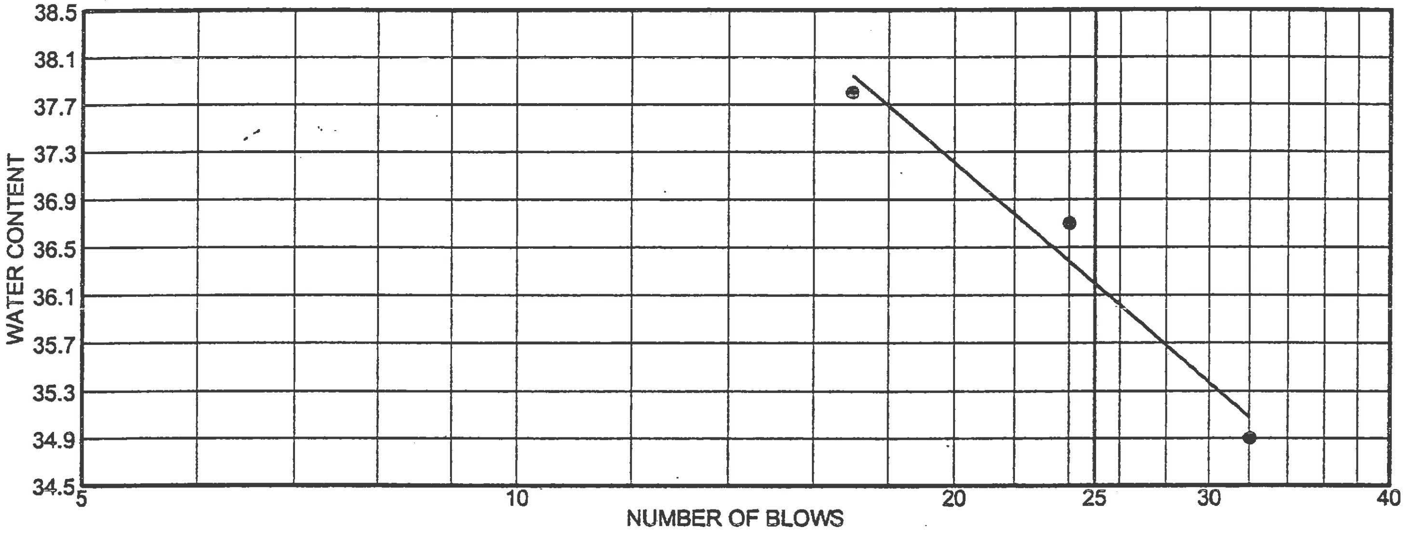
SIGNET TESTING LABS, INC.

Plate

Figure A-14

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Olive brown clay	36	25	11			

Project No. 95- **Client:** URS

Project: Coyote Creek

● **Source:** CC1-5-3 **Elev./Depth:** 20-21.5 ft

Remarks:

● Date tested 6-7-01

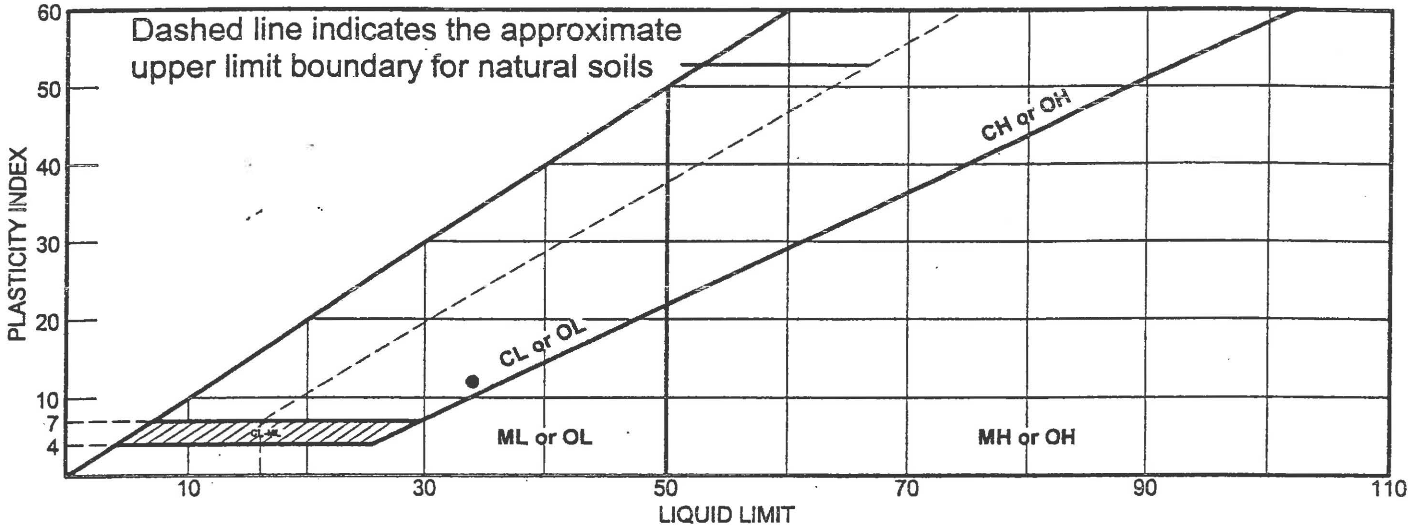
LIQUID AND PLASTIC LIMITS TEST REPORT

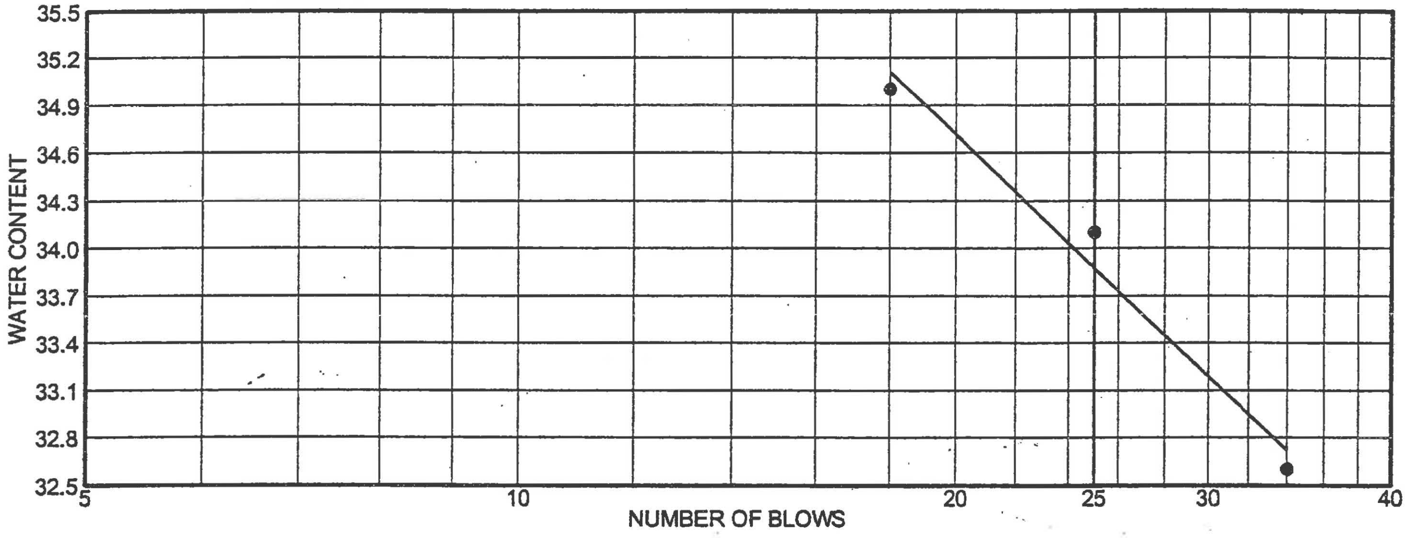
SIGNET TESTING LABS, INC.

Plate

Figure A-15

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Olive brown gravelly clay	34	22	12			

Project No. 95- **Client:** URS

Project: Coyote Creek

● **Source:** CC2-1-3 **Elev./Depth:** 5-6.5 ft

Remarks:

● Date tested 6-4-01

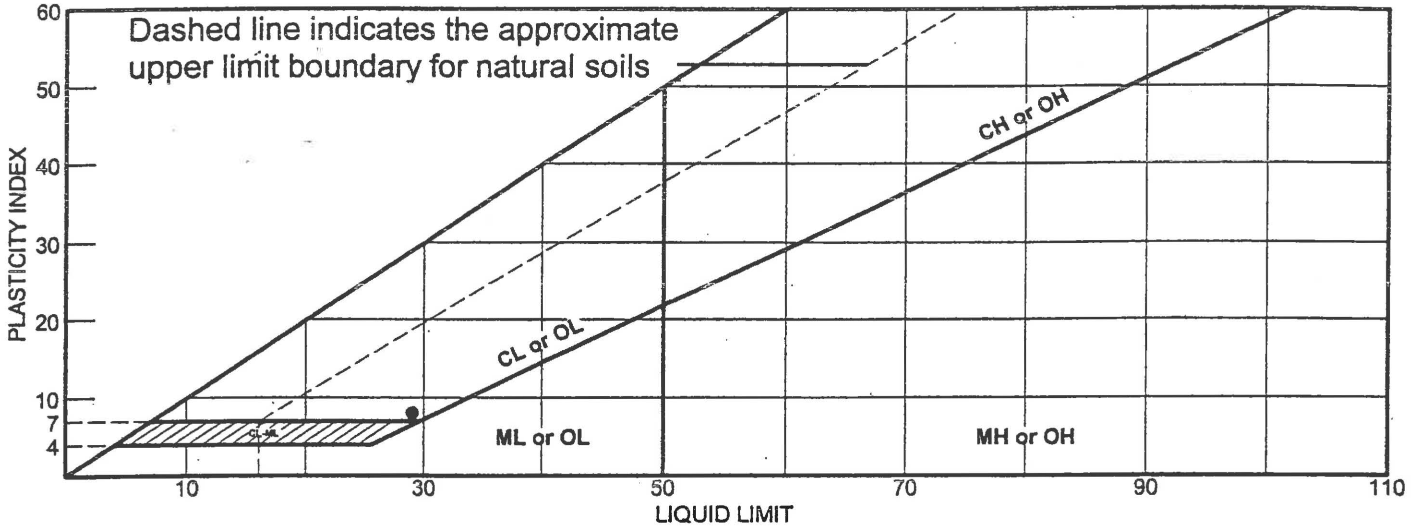
LIQUID AND PLASTIC LIMITS TEST REPORT

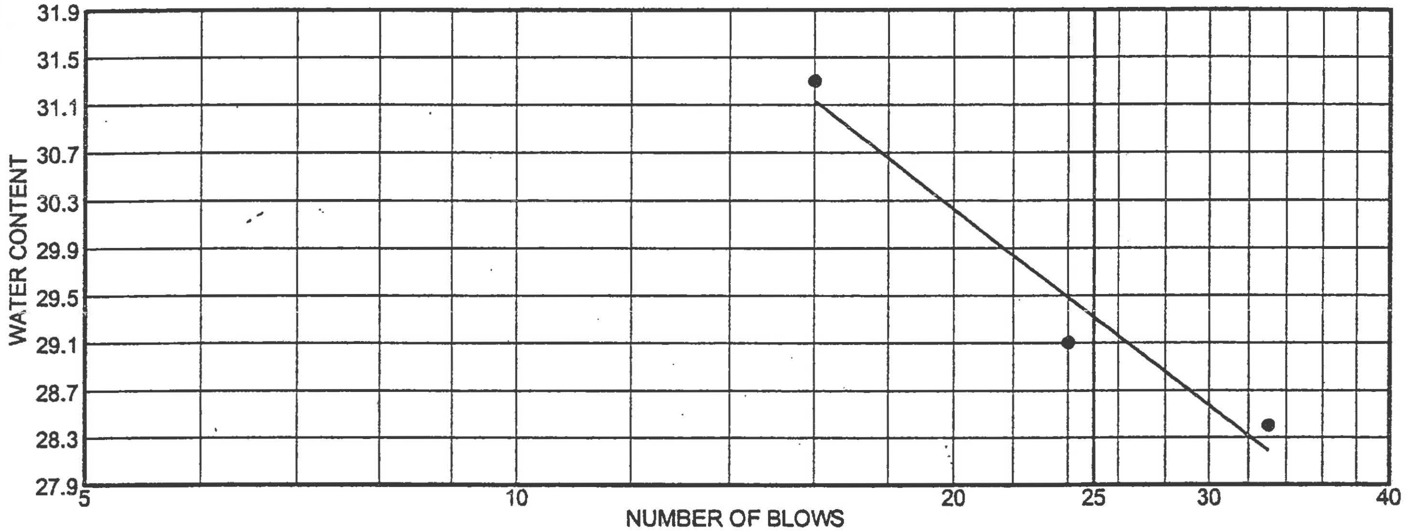
SIGNET TESTING LABS, INC.

Plate

Figure A-16

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown silty clay	29	21	8			

Project No. 95- **Client:** URS

Project: Coyote Creek

● **Source:** CC2-3-3 **Elev./Depth:** 15-16.5 ft

Remarks:

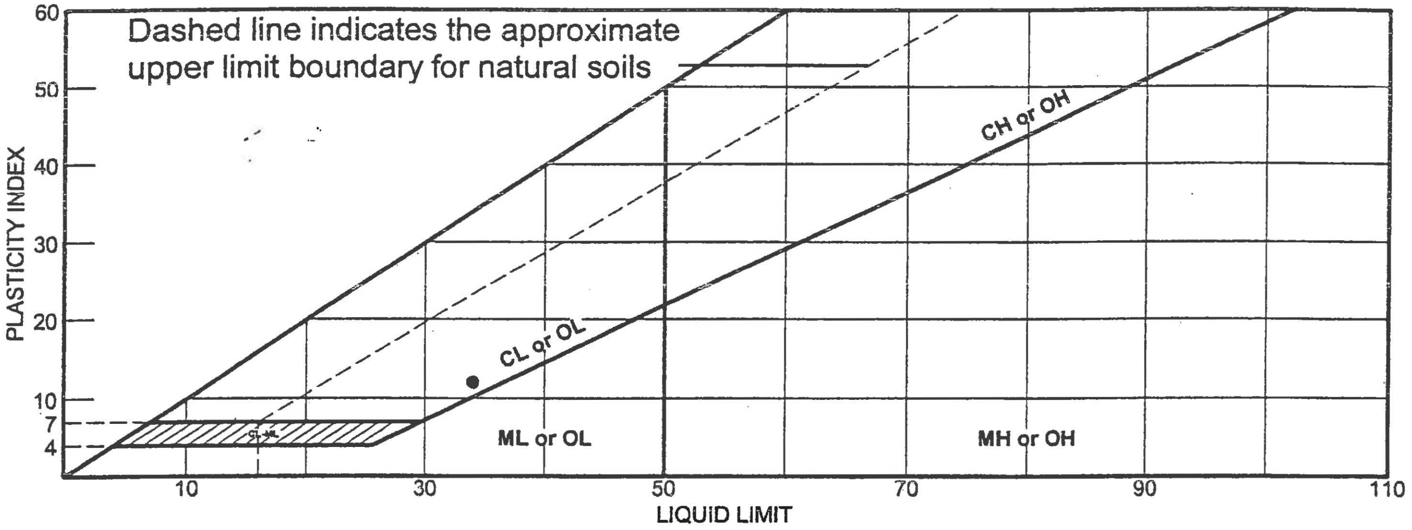
● Date tested 6-7-01

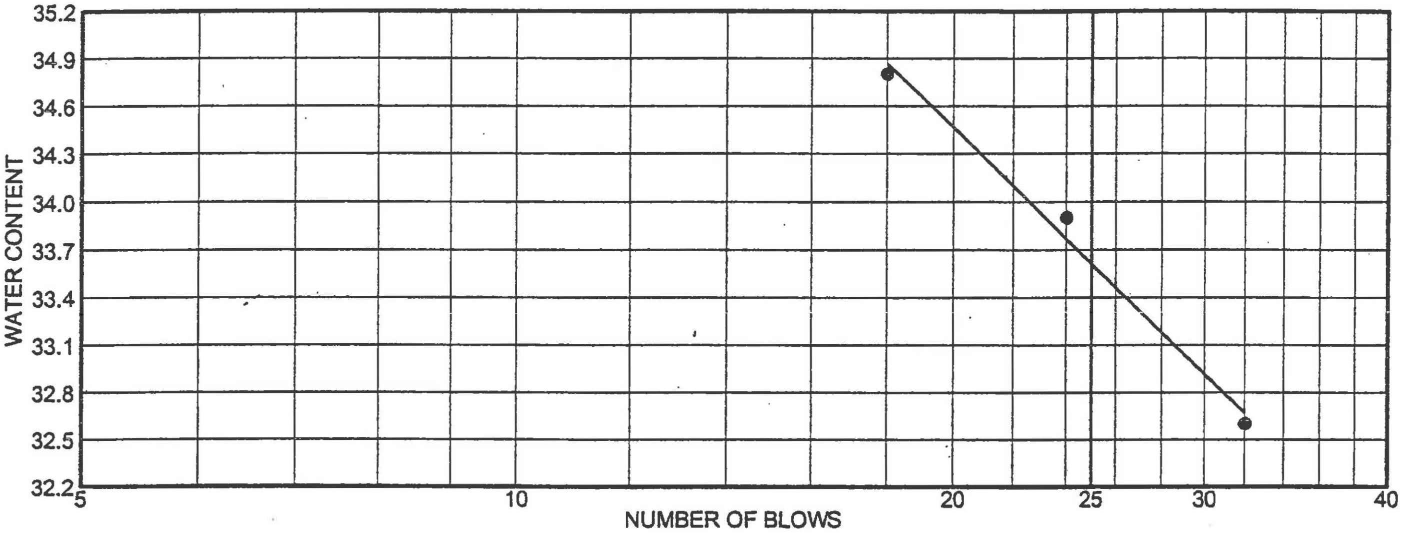
LIQUID AND PLASTIC LIMITS TEST REPORT

SIGNET TESTING LABS, INC.

Plate

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Light brown clay	34	22	12			

Project No. 95- **Client:** URS

Project: Coyote Creek

● **Source:** CC4-2 **Elev./Depth:** 9-11.5 ft

Remarks:

● Date tested 6-7-01

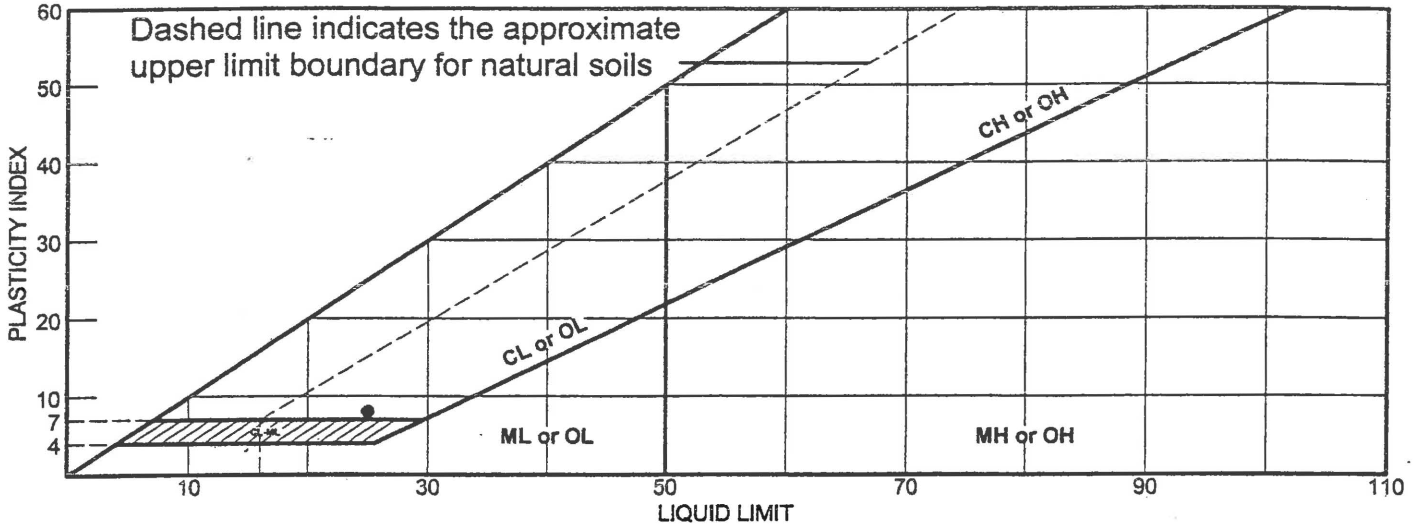
LIQUID AND PLASTIC LIMITS TEST REPORT

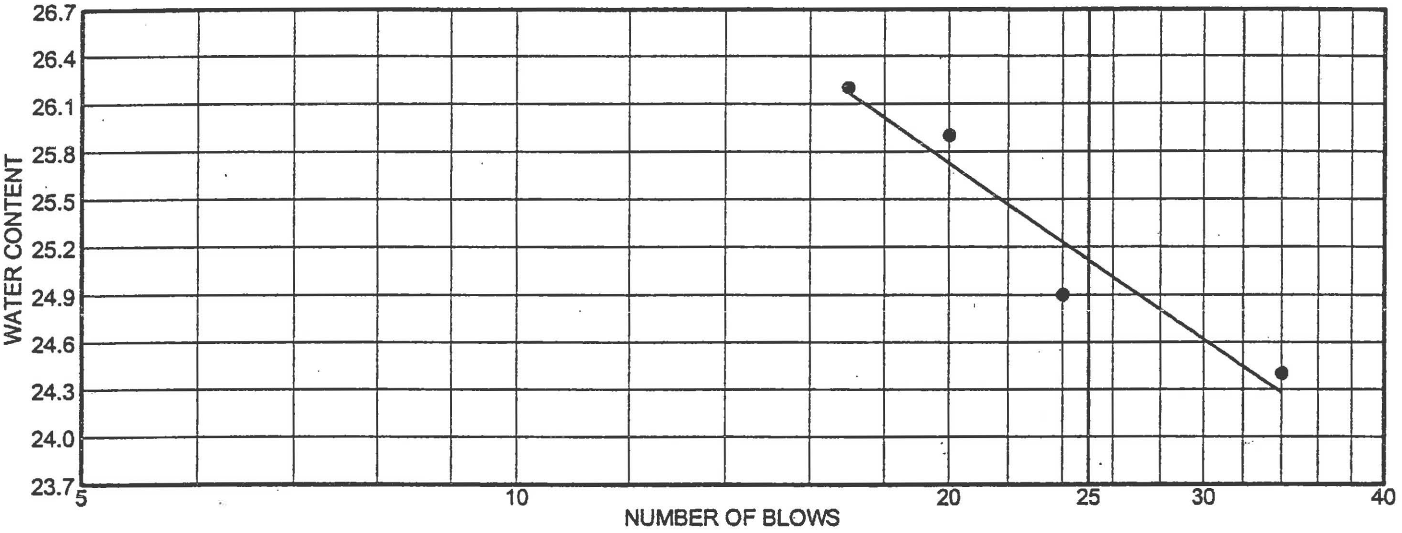
SIGNET TESTING LABS, INC.

Plate

Figure A-18

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Dark gray silty clay	25	17	8			

Project No. 95- **Client:** URS

Project: Coyote Creek

● **Source:** CC4-8 **Elev./Depth:** 24-26.5 ft

Remarks:

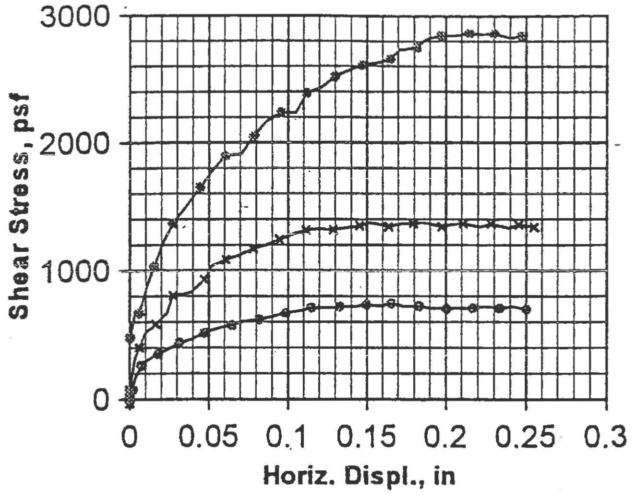
● Date tested 6-7-01

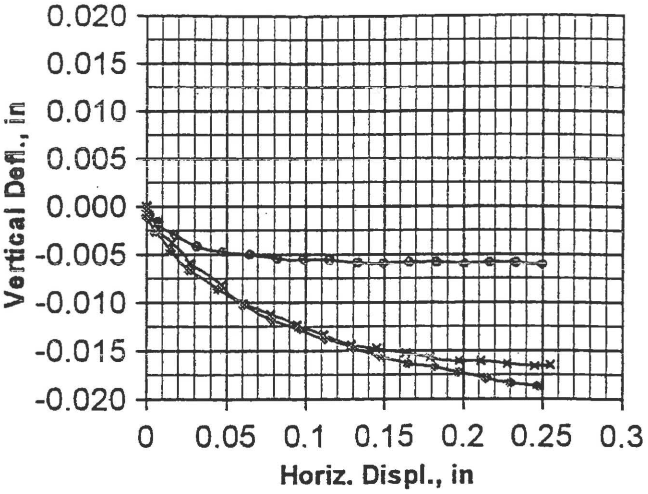
LIQUID AND PLASTIC LIMITS TEST REPORT

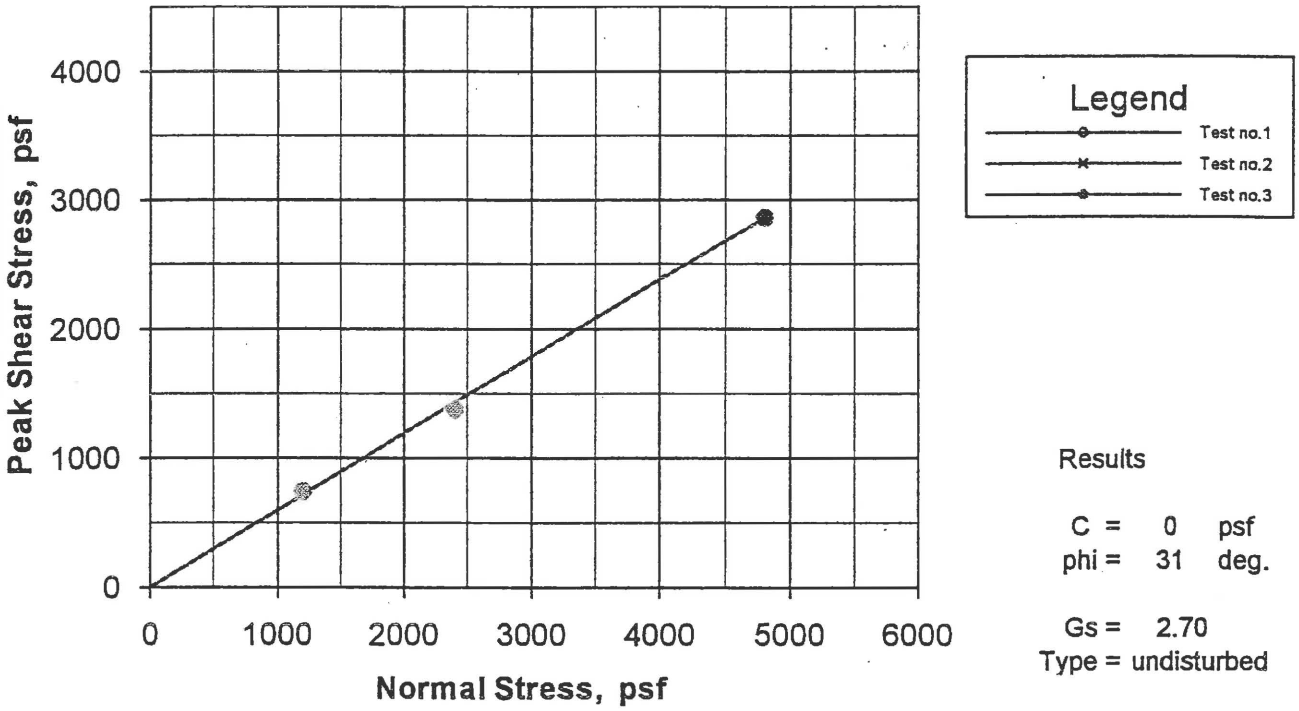
SIGNET TESTING LABS, INC.

Plate

Figure A-19







Results

C = 0 psf
phi = 31 deg.

Gs = 2.70
Type = undisturbed

Test no.	SigN psf	Peak Shear str., psf	Displ. in.	Strain Rate in./hr	Initial MC %	Initial DD pcf	Initial Sat. %	Initial Void Ratio	Initial Ht. in.	Initial Dia. in.	Final MC %	Final DD pcf	Final Sat. %	Final Void Ratio	Final Ht. in.
1	1200	741	0.166	0.05	26.8	92.8	89	0.816	1.00	2.416	24.2	97.6	90	0.728	0.951
2	2400	1371	0.187	0.05	26.6	90.9	84	0.854	1.00	2.416	24.9	98.5	95	0.712	0.923
3	4800	2860	0.215	0.05	26.9	93.2	90	0.809	1.00	2.416	22.4	104.5	99	0.613	0.892

Client:	**URS**	Boring #:	**CC1-4**	Sample #:	
Project:	**Coyote Creek**	Depth (ft):	**15-17.5**		
Project #:	**95-00112018.00**	Soil:	**Light brown silt with clay**		

TEST REPORT: Direct shear - inundated, consolidated, & drained test

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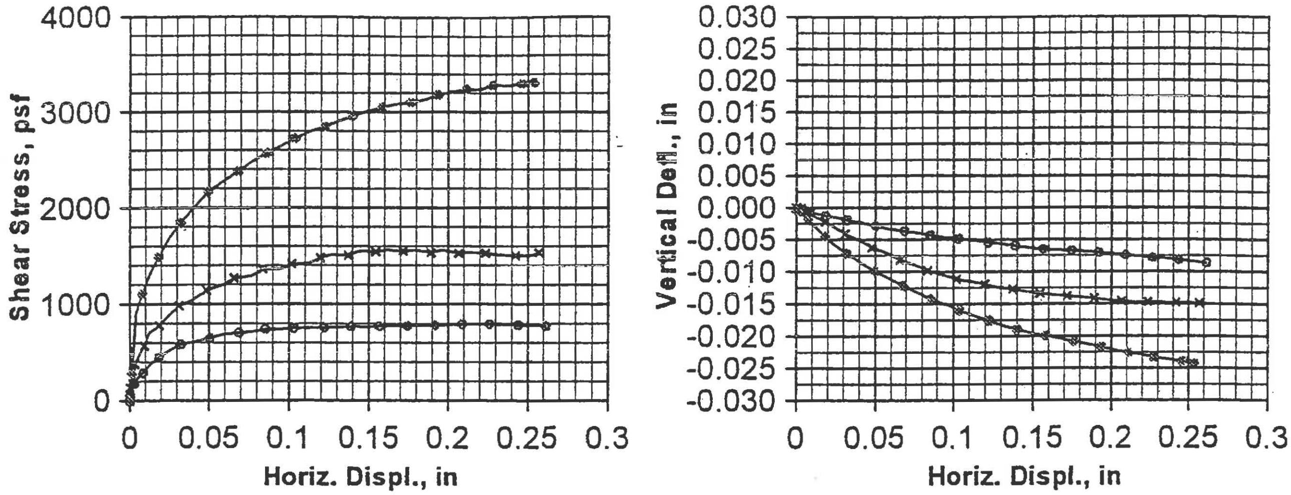
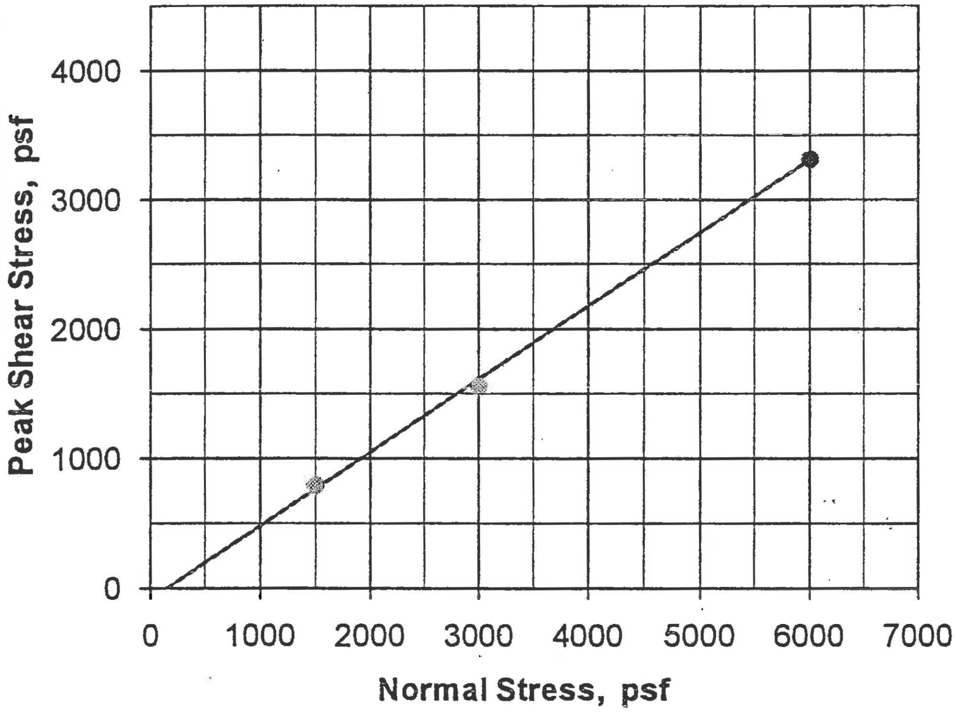




Results

C = 0 psf
phi = 29 deg.

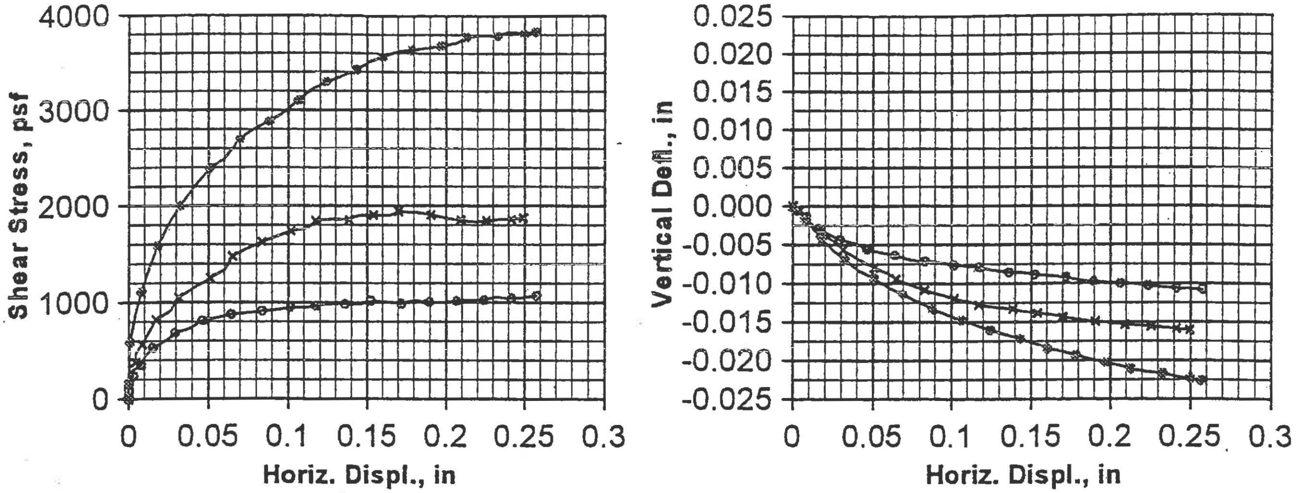
Gs = 2.70
Type = undisturbed

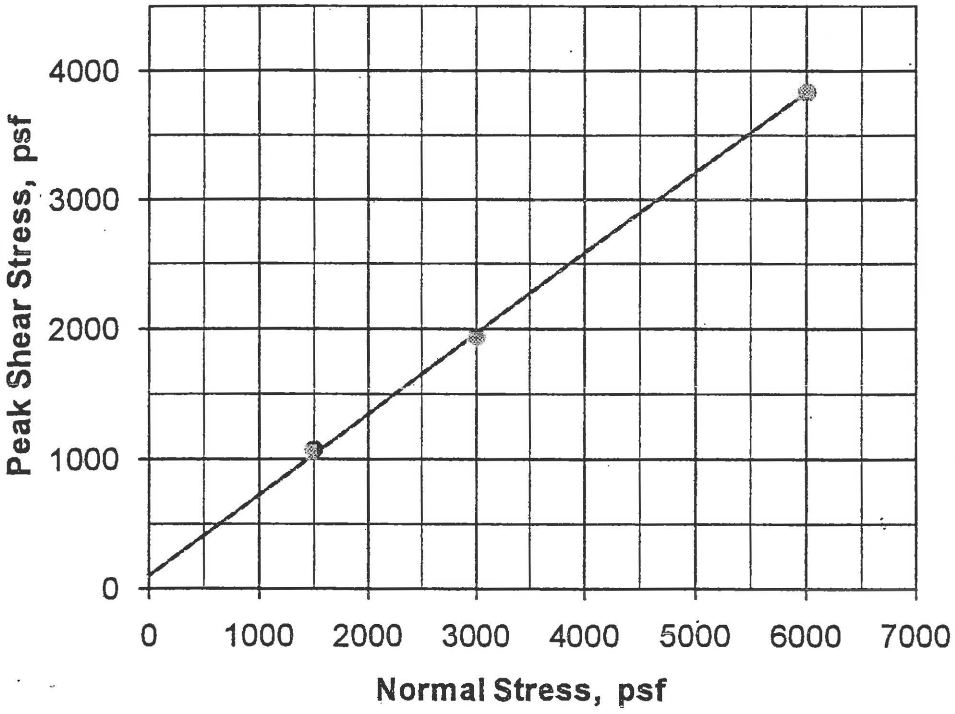
Test no.	SigN psf	Peak Shear str., psf	Displ. in.	Strain Rate in./hr	Initial MC %	Initial DD pcf	Initial Sat. %	Initial Void Ratio	Initial Ht. in.	Initial Dia. in.	Final MC %	Final DD pcf	Final Sat. %	Final Void Ratio	Final Ht. in.
1	1500	791	0.226	0.09	28.7	92.5	94	0.822	1.00	2.416	28.9	95.1	101	0.773	0.973
2	3000	1558	0.161	0.09	31.0	90.6	97	0.861	1.00	2.416	29.7	95.3	104	0.768	0.950
3	6000	3311	0.254	0.09	30.6	90.5	96	0.863	1.00	2.416	28.2	99.7	110	0.691	0.907

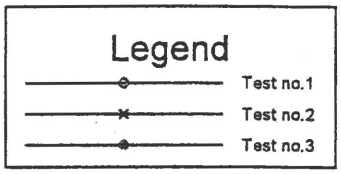
Client:	**URS**	Boring #:	**CC1-6**	Sample #:	
Project:	**Coyote Creek**	Depth (ft):	**25-27.5**		
Project #:	**95-00112018.00**	Soil:	**Light brown clayey silt**		

TEST REPORT: **Direct shear - inundated, consolidated, & drained test**

Signet Testing Labs, Inc.







Results

C = 100 psf
phi = 32 deg.

Gs = 2.70
Type = undisturbed

Test no.	SigN psf	Peak Shear str., psf	Displ. in.	Strain Rate in./hr	Initial MC %	Initial DD pcf	Initial Sat. %	Initial Void Ratio	Initial Ht. in.	Initial Dia. in.	Final MC %	Final DD pcf	Final Sat. %	Final Void Ratio	Final Ht. in.
1	1500	1072	0.257	0.09	23.1	102.1	96	0.651	1.00	2.416	21.5	108.4	105	0.555	0.942
2	3000	1938	0.170	0.09	22.7	103.3	97	0.632	1.00	2.416	19.3	110.2	99	0.529	0.937
3	6000	3832	0.240	0.09	22.2	103.6	96	0.626	1.00	2.416	18.1	113.8	102	0.481	0.911

Client:	**URS**	Boring #:	**CC4-8**	Sample #:	
Project:	**Coyote Creek**	Depth (ft):	**24-26.5**		
Project #:	**95-00112018.00**	Soil:	**Dark gray silty clay**		

TEST REPORT: Direct shear - inundated, consolidated, & drained test

Signet Testing Labs, Inc.

Figure A-22